Patent filing number:	1326/del/2015
Date of filing:	12-may-15
Title:	Terpenoids from colebrookea oppositifolia as activity enhancers of antibiotic compositions and extraction method thereof
Status:	Filed
Inventors Name:	Kamal Dev, Anuradha Sourirajan, Vipasha Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Herbal bioenhancers of antibiotics
Brief description (100 words):	Present invention discloses use of terpenoids obtained as hydro extracts from leaves of colebrookea oppositifolia to enhance the activity of existing antibiotic compositions (synthetic e.g.erythromycin and also natural or herbal/ayurvedic compositions) and also to overcome antibiotic resistance in bacteria. the specific terpenoids responsible for enhancement of the bioactivity have been identified by the inventors as ? –pinene and ?- carene.

Patent filing number:	1429/del/2015
Date of filing:	20-may-15
Title:	Compounds for enhancing activity of antibiotic compositions against drug sensitive and drug resistant bacteria
Status:	Filed
Inventors Name:	Kamal Dev, Kazal Pathania
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioenhancers of antibiotics
Brief description (100 words):	The present invention discloses a universal activity enhancer for antibiotic compositions in form of a phytocompound –carnosol. the compound acts as an efflux pump inhibitor (epi) which when added to various antibiotic compositions, helps to overcome multidrug resistance (mdr). the compound is extracted from the leaves of rosmarinus officinalis. the compound when used with standard antibiotic compositions, significantly enhanced their activity and helped to overcome bacterial resistance. potentiation was obtained with ciprofloxacin, tetracycline, erythromycin and gentamycin against salmonella typhimurium, and with ciprofloxacin and gentamycin against escherichia coli, a frequent cause of life threatening blood stream infections and others such as urinary tract infections (uti)

Patent filing number:	1464/del/2015pct/in2016/000129
Date of filing:	23-may-15
Title:	Compounds from vitex nigundo for enhancing antibiotic activity and overcoming drug resistance
Status:	Filed
Inventors Name:	Kamal Dev, Anuradha Sourirajan, Sonika Gupta
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioenhancers of antibiotics
Brief description (100 words):	The present invention discloses an alcoholic extract from the leaves of vitex nigundo which when added to antibiotics, not only increases their activity but also helps to overcome antibiotic resistance in bacteria. the extract has distinctive analytical fingerprints as given in fig. 1 and fig. 2 and the marker compounds in the extract are vitexin and quercetin. some of the phytocompounds present in the extract are derivatives of vitexin and quercetin. extract of invention involves taking fresh leaves, washing and sterilizing them and then drying the leaves at 37°c followed by powdering, extraction with alcohol and purification on silica gel column. significant enhancement of activity of the synthetic antibiotics, such as ciprofloxacin and amoxyclav was observed against bacteria viz. s. aureus, e. coli, s. typhi and p. aeruginosa, when extract of present invention was used along with the antibiotics.

Patent filing number:	1846/del/2015
Date of filing:	22-jun-15
Title:	Novel microbe producing xylanase and method of enzyme production thereof
Status:	Filed
Inventors Name:	Amit Seth, Shweta Chauhan, Chandrika Attri Seth, Varun Jaiswal
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Enzyme technology
Brief description (100 words):	Strain improvement of microbial isolate tp28 for enhanced xylanase activity was done by using chemical mutagens. among the mutants investigated, maximum enzyme activity was obtained by mutant strain bacillus sp. sc-2014 ems200 isolated after 2 h of chemical treatment with 200 ug/ml ems. the xylanase of bacillus sp. sc-2014 ems200 was active over a wide range of temperature from 40°c to 60°c and ph from 5.0 to 11.0. mutant xylanase showed maximum xylanase activity at 48 h of incubation, while xylanase from wild strain showed maximum enzyme activity at 72 h of incubation.

Patent filing number:	1895/del/2015
Date of filing:	25-jun-15
Title:	A novel microbe producing extracellular ?-galactosidase and method of enzyme production thereof
Status:	Filed
Inventors Name:	Kamal Dev,Tarun Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Coldactive enzymes
Brief description (100 words):	The present invention discloses a psychrotolerant bacteria i.e. serratia quinivorans b8 producing extracellular galactosidase enzyme having optimal activity at temperature 60°c and ph 7. the specific activity of galactosidase activity is calculated as 23000 u/mg protein. the enzyme activityis not affected by the milk sugars such as lactose, galactose, glucose and metal ions such as ca2+. the enzyme is stable at 4 degree celcius for more than 15 days. method of production of the enzyme involves inoculation of 10% (v/v) pure culture of the microbe in 1.3 % of nutrient broth containing lactose (1% w/v) as a substrate and incubation at 25?c for 110 hours. the media is then centrifuged to obtain the product of present invention in form of supernatant which is the crude enzyme ?-galactosidase.

Patent filing number:	3884/del/2015
Date of filing:	28-nov-15
Title:	Improved persimmon wine with enhanced antioxidant activity and standardized method of production thereof
Status:	Filed
Inventors Name:	DR SOMESH SHARMA AND KIRAN MAHANT
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	The present invention discloses persimmon wine with higher antioxidant content and hence enhanced therapeutic profile and its method of production thereof. the method of production involves use of mixed starter culture of saccharomyces cerevisiae and torulaspora delbrueckii and use of persimmon fruit peels of specific fuyu cultivar. final fermentation conditions are dilution of pulp in 1:1 with water, dahp 0.1%, citric acid 0.2% and pectin esterase 0.4%. the method results in an improved quality of wine with higher amount of alcohol, ester (fruity flavor), phenols and higher antioxidant activity. the batches of wine produced show consistent quality as the method of fermentation is standardized and batch to batch variation is

eliminated.

Patent filing number:	3886/del/2015
Date of filing:	28-nov-15
Title:	Microbially produced antifreeze protein(s) and method of production thereof
Status:	Filed
Inventors Name:	Kamal Dev, Anuradha Sourirajan, Ranjana Suman
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Antifreeze proteins
Brief description (100 words):	The present invention discloses a proteinaceous antifreeze activity in the cell free supernatant obtained by culturing a novel microbe janthinobacterium lividum mmpp4 (genbank accession no. kj509870) in nutrient broth at 4°c until the stationary phase is reached. the cells are removed by centrifugation to obtain the cell free medium, which act as a source of antifreeze activity of the present invention. the microbial strain isolated in the present invention also secrete antimicrobial compounds which kills the pathogenic bacteria staphylococcus aureus and secrete enzymes such as protease, lipase and phytase.

Patent filing number:	201611031746
Date of filing:	17-sep-16
Title:	Novel alcohol free process for extraction of zein and xanthophylls
Status:	Filed
Inventors Name:	Sampy Duggal and Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Agriculture waste management
Brief description (100 words):	the present invention discloses a novel process for extraction of zein and xanthophyll from corn meal (cm) and corn gluten meal (cgm) in which use of expensive organic solvents such as ethanol has been excluded by innovative use of immobilized enzymes to free the molecules of interest from the surrounding molecules followed by ultrafiltration to finally obtain pure zein and xanthophylls. the protease and amylase are used as immobilized enzymes in a 2 stage bioreactor for the treatment of raw material and yield is enhanced by passing the filtrate through the ultrafiltration membrane 3-4 times to concentrate the same.

Patent filing number:	201711007132
Date of filing:	28-feb-17
Title:	Novel microbe for assessing in vivo antioxidant status of foods and method thereof
Status:	Filed
Inventors Name:	Adesh K. Saini, Christine Coe Winterbourn, Vikas Kumar, Reena V. Saini, Rakesh Kumar, Ashu Poswal
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Genetic engineering
Brief description (100 words):	The present invention discloses a method to carry out in vivo testing of antioxidant status of foods using genetically modified yeast cells (mutant yeast cells) which expresses human proteins and helps to quantify actual anti-oxidant status of foods. the novel microbes express prx1 and prx 2: human proteins i.e. peroxiredoxin which are good oxidant sensors and change shape on intracellular and extracellular stress exposure. for in vivo testing, anti-oxidants extracted from foods are added to media at defined concentrations (1.2%) and the microbe allowed to grow. thereafter, expression of human proteins expressed by the mutant yeast is quantified using immune-blotting. higher levels of dimer form of prx1 and prx2 indicate good anti-oxidant activity of the test compound while low levels of prx1 and prx2 indicate poor anti-oxidant activity.

Patent filing number:	201711007222
Date of filing:	1-mar-17
Title:	Novel nanocomposite for therapeutic use as immunostimulator and method thereof
Status:	Filed
Inventors Name:	Reena V. Saini, Adesh Kumar Saini, Indu Hira, Amit Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer immunotherapy
Brief description (100 words):	The present report concluded that pec-gg-zno) nanocomposite possesses potential immunostimulatory activity that is capable of enhancing anticancer responses of human blood lymphocytes. moreover, pec-gg-zno nanocomposite also showed cytotoxicity towards lung adenocarcinomas (lung cancer) and breast carcinomas at 25-100 ug/ml. this study provide a novel nanocomposite that can

be used for immuno-potentiating immune system of patients suffering from lung adenocarcinomas (lung cancer) and breast carcinomas as this nanocomposite has very less or no cytotoxicity towards pbmc at effective concentrations.

Patent filing number:	2017110115714
Date of filing:	4-may-17
Title:	Improved anti biotic composition for treatment of typhoid and gastro infections caused by salmonella.
Status:	Filed
Inventors Name:	Kamal Dev, Jyoti Mehta, Urmila
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Antibiotic resistance
Brief description (100 words):	Present invention discloses an improved antibiotic composition for the treatment of typhoid and gastro infections caused by salmonella species, due to presence of bioactivity enhancing compound – lariciresinol. the compound significantly enhances the activity of the antibiotic by blocking the ‘efflux pump’ of salmonella species. improved compositions consisting of lariciresinol and ciprofloxacin and tetracycline show significantly improved efficacy against salmonella species. the mic (minimum inhibitory concentration) of the improved compositions is 8 fold lower in case of ciprofloxacin and 4 fold lower in case of tetracycline.

Patent filing number:	201711017988
Date of filing:	23-may-17
Title:	Improved antibiotic composition for treatment of infections caused by staphylococcus aureus.
Status:	Filed
Inventors Name:	Kamal Dev, Urmila, Jyoti Mehta
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Antimicrobials for drug resistance
Brief description (100 words):	Present invention discloses an improved antibiotic composition for the treatment of infections caused by staphylococcus species which has higher efficacy than existing antibiotics due to presence of bioactivity enhancing compound – ferulic acid. the compound significantly enhances the activity of the antibiotic by blocking the nora ‘efflux pump’ of staphylococcus species. efflux pump is a protein present in the cell wall of bacteria which ‘pumps

	out' or throws out the antibiotic, thus necessitating use of higher dosages of antibiotic to kill the bacteria. however, when the pump is blocked, even much lower doses of the antibiotic are sufficient to kill the bacteria because the bacteria are unable to 'pump out' the antibiotic and hence die. the mic (minimum inhibitory concentration) of the improved compositions is 8 fold lower in case of ciprofloxacin and 4 fold lower in case of norfloxacin.
Patent filing number:	201711018003
Date of filing:	23-may-17
Title:	Gene expressing novel microbial protein for engineering salt tolerance in plants and method thereof.
Status:	Filed
Inventors Name:	Anuradha Sourirajan, Shivani Vaidya, Kamal Dev
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Tools for transgenic crops
Brief description (100 words):	The present invention discloses a novel microbial salt-inducible protein for engineering salt tolerance in plants and method thereof. the gene encoding the salt-inducible protein from halobacillus trueperi ss1 can be inserted into crops which will help the crops to overcome salt stress when the plant is exposed to high salt levels. the gene encoding the salt-inducible protein, glutamate gamma-semialdehyde dehydrogenase will be capable of imparting salt stress resistance to a plant for a prolonged period of time. the salt stress tolerance crop/plant will be safe for humans and without any undesirable effects when consumed by humans or animals. in addition, the use of gene encoding the salt-inducible protein can help to grow plants in saline barren lands thus reclaiming lands. the plants can also be used as 'bio-pumps' for treatment of industrial effluents in a low-cost and effective manner
Patent filing number:	201711019443
Date of filing:	2-jun-17
Title:	Novel nanocomposite based immunosensor for detection of celiac disease and method thereof.
Status:	Filed
Inventors Name:	Shagun Gupta, Dinesh Kumar, Ankur Kaushal
Department:	Faculty of applied sciences & biotechnology

Specialized area of Patent	Biosensor
Brief description (100 words):	The present invention discloses a multiwalled carbon nanotubes-gold nanoparticles-mercaptopropionic acid-polyamidoamine dendrimers composite based electrochemical immunosensor for the detection of anti-gliadin antibodies in human serum. the sensitivity of the sensor is 762.6 ua cm-2ng-1 and lower detection limit is 0.2pg per 6 ul. the immunosensor is higly sensitive against celiac disease, has low cost and is reusable. it has a wide application in hospitals.

Patent filing number:	201711021290
Date of filing:	17-jun-17
Title:	Novel anticancer compound.
Status:	Filed
Inventors Name:	Reena V. Saini, Adesh Kumar Saini, Indu Hira, Amit Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer therapeutics
Brief description (100 words):	The present invention discloses a novel anticancer nanocomposite of pectin-guar gum and zinc oxide (pec-gg-zno) which is highly effective in killing cancer cells but does not harm normal cells, making it a safe and effective anti-cancer agent. the novel nanocomposite shows good activity against cancer cell line-1(lung cancer) and cancer cell line-2 (breast cancer) at extremely low concentration range of just 25-200 ug per ml. the nanocomposite is completely water soluble, which makes it ideal for use as an intravenous, anticancer chemotherapy agent.

Patent filing number:	201711025878
Date of filing:	20-jul-17
Title:	Herbal extract based formulation for treatment of salmonellosis.
Status:	Filed
Inventors Name:	Anju Bala, Ravinder Kaushik, Naveen Kumar, Somesh Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	A herbal extract based formulation for treatment of salmonellosis was developed under the present investigations using different herbs of western himalayan region

Patent filing number:	201711028454

Date of filing:	10-aug-17
Title:	Herbal pharmaceutical excipient for enhancing antifungal and antibacterial properties of existing drugs
Status:	Filed
Inventors Name:	Kamal Dev, Vikas Kumar, Rajan Rolta, Akash Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Herbal antimicrobial pharmaceutics
Brief description (100 words):	The present invention discloses a novel herbal pharmaceutical excipient from rheum emodi for enhancing efficacy of existing antifungal and antibacterial drugs. it amazingly enhances the efficacy of existing antibiotic and antifungal drugs such as amoxyclav, chloramphenicol, tetracycline, erythromycin, fluconazole, and amphotericin respectively. the herbal extract is an alcoholic extract from the rhizomes of rheum emodi. it is in form of free flowing dry powder which can be easily added to existing antibiotic and antifungal drugs as an excipient to enhance their efficacy and reduce dosage and cost. the excipient is non-toxic, free from side-effects and can be used to develop improved dosage forms e.g. tablets or capsules in which dosage is less which reduces side effects without compromising efficacy.

Patent filing number:	201711028932
Date of filing:	15-aug-17
Title:	Herbal composition from stephania elegans for breast cancer treatment.
Status:	Filed
Inventors Name:	. Reena V. Saini, Ravin Sharma, Gourav Chandan, Anterpreet Chahal
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer therapeutics
Brief description (100 words):	The present invention discloses a herbal anticancer composition from stephania elegans which is effective against breast cancer cells and is non-toxic towards normal cells. the same is in form of dry powder alcoholic (methanol) extract from the tubers of the plant. the extract shows significant 10 cytotoxic activity towards breast cancer cell line mcf-7 cells (ic50 158.7plus minus0.13micro g per ml). however, it did not show any toxicity towards normal cells. further, the extract is totally non-toxic even in gram quantities, when tested in mice, enabling its use as an effective anti-cancer agent in case of breast cancer.

Patent filing number:	201711028931
Date of filing:	15-aug-17
Title:	Novel gene coding a thermostable glutaminase enzyme
Status:	Filed
Inventors Name:	Kamal Dev, Dewanshu Sharma, Anuradha Sourirajan, Sonam Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Industrial enzymes
Brief description (100 words):	The present invention discloses a novel gene consisting of 971 base pairs and expressing a highly stable glutaminase which is stable even at 65oc. the novel gene was successfully isolated from a bacterium geobacillus kaustophilus strain ps10 thriving in the hot springs of north western himalayas (genbank accession number ky883609). the gene was sequenced by the inventors and the pcr gene amplification results are shown in fig. 2, whereas nucleotide sequence of the gene is shown in fig. 3. the glutaminase enzyme expressed by the gene was found to be resistant to various detergents and chemicals, making the enzyme ideal for use in commercial purposes and various industries such as food, textiles, paper, starch saccharification, bakery, pharmaceuticals, and detergent industries.

Patent filing number:	201711031489
Date of filing:	6-sep-17
Title:	Low-cost production of canthaxanthin and xanthophyll pigments using micrococcus luteusand brewers spent grain
Status:	Filed
Inventors Name:	Kanchan Heer and Somesh Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	The present studies revealed that micrococcus luteus (kx354347) is a potential pigment producing strain with non-pathogenic nature producing dark yellow shade pigment on brewers spent grain . however, brewers spent grain (bsg) is a waste from brewery and is a good source of protein, vitamin, minerals and dietary fibers. so, bsg is used as a substrate for the production of pigment by micrococcus luteus (kx354347). methanol was the best solvent for extraction of pigment. the major pigments identified were canthaxanthin and xanthophylls. it has also been observed that a pigment produced by micrococcus luteus (kx354347) had high antioxidant activity 88.07 % with maximum antimicrobial activity against e.coli. the pigment

was chemically modified with p-aminobenzoic acid for increasing its solubility in water and use in food based products.

Patent filing number:	201711034173
Date of filing:	26-sep-17
Title:	Thermostable antimicrobial peptides and method thereof
Status:	Filed
Inventors Name:	Kamal Dev, Dewanshu Sharma, Anuradha Sourirajan, Sonam Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Antimicrobial peptides
Brief description (100 words):	The present invention discloses thermostable peptides (sequence 3 and sequence 4) and their method of production using a genetically engineered microbe in which specific genes encoding for these peptides are inserted. the peptides are unique and are not disclosed in prior art as found by search for sequences. further, the genes encoding for these peptides are novel and were isolated by the inventors from geobacillus thermoleovorans-pw13. the antimicrobial peptides of the present invention are thermostable which enables their easy transport and storage, without the need of cold chain. this drastically reduces the cost of production, making them ideal for their use as therapeutic agents in pharma industry, cosmetics industry and also in food industry where spoilage of foods can be controlled by addition of such peptides

Patent filing number:	201711034223
Date of filing:	27-sep-17
Title:	Process for economical and fast production of pure walnut wine from de-oiled walnut kernels.
Status:	Filed
Inventors Name:	Neha, Ravinder Kaushik, Somesh Sharma, Naveen Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	Walnut is a fruit that provides proteins, fat, antioxidants, some vitamins and minerals. in view of low nutrient bioavailability of walnut, there is a need to develop a product with high nutrient availability. therefore, fermentation can be one of the alternatives to increase the availability of nutrients in walnut. hence, in the present studies, the process was developed for economical and fast

production of pure walnut wine from de-oiled walnut kernels.

Patent filing number:	201711034820
Date of filing:	30-sep-17
Title:	Advanced polyhouse structure for water harvesting and growing two different seasonal crops
Status:	Filed
Inventors Name:	Kartik Chauhan, Rupak Nagraik
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Agriculture
Brief description (100 words):	We have developed a new polyhouse structure with following features: concave shaped roof for water collection:water harvesting and collection tank:cultivation of two seasonal crops (temperature varying) at same time:improved aerodynamics, stable polyhouse in case of destruction caused by wind:reduced electricity cost of motor used in polyhouse as the structure itself helps in irrigation due to its shape and placement of the storage tank.

Patent filing number:	201711037586
Date of filing:	24-oct-17
Title:	Compact and portable herbal water purifier for drinking water
Status:	Filed
Inventors Name:	Amanpreet Kaur, Chandresh Kumari, Swati, Tanvi Gupta, Abhishek Bhardwaj, Sourabh Kulshrestha
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Water purification
Brief description (100 words):	Dipbag based water purification kit was developed containing moringa oleifera seeds for the purification of drinking water. bacterial contamination can be removed by treating the water with the dipbag in a short span of 5 min.

Patent filing number:	201711037589
Date of filing:	24-oct-17
Title:	Eco-friendly process for faster production of therapeutic fruit vinegar from wild apricots.
Status:	Filed
Inventors Name:	Priyanka Chauhan, Somesh Sharma

Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	Complete technology was developed for the preparation of wild apricot vinegar at the lab scale

Patent filing number:	201711038776
Date of filing:	31-oct-17
Title:	A method and composition of pumpkin wine using oak (quercus leucotrichophora) wood chips.
Status:	Filed
Inventors Name:	Amandeep Thakur and Somesh Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	Method was developed for the production and maturation of wine from pumpkin. different wood chips were tried for the bottle maturation of wine and quercus leucotrichophora was the best. the wine matured with oak wood chips had better quality and sensory characteristics

Patent filing number:	201711039167
Date of filing:	2-nov-17
Title:	A method of recovery of silver from waste x-ray films by the use of thermostable alkaline protease enzyme
Status:	Filed
Inventors Name:	Neha Thakur and Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Hospital waste recycling using microbial enzyme
Brief description (100 words):	Ecofriendly recovery of silver from waste x-ray films using thermostable alkaline protease enzyme from mutated bacillus sp. apr-4 was analysed. at ph 9.0, upto 65oc, with enzyme concentration of 100u/ml gelatin layer was completely hydrolyzed witin 4min which was estimated to be very low time as compared to previous reports. the feasibility of enzyme was also checked for continuous process and with enzyme concentration of 10u/ml, upto 7 cycles, gelatin layers were completely removed within 10min without any protective agent. with increase in enzyme concentration, time requirement also decreased upto 17 cycles and resulted in hydrolysis of gelatin within40 minutes.

Patent filing number:	299678
Date of filing:	24-nov-17
Title:	Polyhouse structure.
Status:	Filed
Inventors Name:	Kartik Chauhan, Rupak Nagraik
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Agriculture
Brief description (100 words):	Polyhouse cultivation of vegetables is emerging as a specialized production technology to overcome biotic and abiotic stresses and to break the seasonal barrier production in agriculture. in our study modified structure of poly house helps to overcome problems such as crop destruction caused by weather, water shortage, soil erosion and inability to grow two different seasonal crops simultaneously. the new structure design of polyhouse provides stability and maximize the harvesting of rain water without changing the functionality of the polyhouse structure.

Patent filing number:	201711043005
Date of filing:	30-nov-17
Title:	Zein film composition with plasticizer for coating of food products
Status:	Filed
Inventors Name:	Sampy Duggal, Somesh Sharma and Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Agriculture waste utilization
Brief description (100 words):	In this study zein (10% w/w) isolated from corn gluten meal from bajaura makka (h.p.) was solubilised in hot ethanol (90%) and three types of zein films were prepared using glycerol 5% (w/w) and fructose 4% (w/w) as plasticizers. the films prepared by zein+ethanol+glycerol combination were thick, flexible, stretchable, less clear, less brittle and having higher film thickness, water vapour transmission rate than other two zein films. these zein films were used for coating of model food products viz. himalayan fig (ficus palmata) leather, roasted nuts, chocolate and vanilla cookies and best coating results were observed with zein+ ethanol+glycerol film.

Patent filing number:	201711043219
Date of filing:	1-dec-17
Title:	Improved bio-process for synthesis of lactamide

Status:	Filed
Inventors Name:	Amit Seth, Poonam Singh, Ansu Kumari, Kalpana Chauhan, Chandrika Attri
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Enzyme technology
Brief description (100 words):	The present invention discloses the process for the production of industrially important lactamide. this invention provides a process for the production of lactamide from lactonitrile in an aqueous medium by use of a microorganism having nhase activity. the chemical synthesis of lactamide is very troublesome and tedious, still lactamide is not produced on industrial scale due to the limitations thrown by the chemical synthesis like production at higher temperature, pressure, high cost and longer duration of reaction. the enzymatic approach will open new doors for the industrial production of the important commodity chemical i.e. lactamide. this is the first report on enzymatic synthesis of lactamide. the substrate used in the reaction is lactonitrile which is converted to lactamide by using nitrile hydratase enzyme.

Patent filing number:	201711045550
Date of filing:	19-dec-17
Title:	Improved process for production of thermostable pigments from monascus purpureus
Status:	Filed
Inventors Name:	Kritika Saini, Ankur Kaushal, Shagun Gupta, Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioactive pigments from microbial cultures
Brief description (100 words):	The present invention discloses an improved process for the production of thermostable pigments from monascus purpureus using low-cost starch sources and/or agro-waste of industry. the process involves two steps-multiplication of the pigment producing biomass under optimized conditions of ph, light, humidity and temperature and second step of drying the fungus and using solvents to extract the pigments. the natural pigments produced were stable for two years after high temperature (65^{o}c) treatment for three hours. these pigments (red, yellow and orange) can withstand high temperature and can be used for various industrial applications such in fabrics, food, cosmetics etc.

Patent filing number:	201811002327
Date of filing:	19-jan-18
Title:	Nano biosensor based handheld device for early and accurate diagnosis of celiac disease
Status:	Filed
Inventors Name:	Shagun Gupta, Dinesh Kumar, Ankur Kaushal
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biosensor
Brief description (100 words):	This invention relates to the development of electrochemical immunosensor for diagnosing celiac disease, an autoimmune disorder of small intestine based on quantification of anti- tissue transglutaminase antibodies. the tissue transglutaminase (ttg) antigen was conjugated with gqd-pamam nanohybrid based sensor that can detect as low as 0.1 fg per 6 µl (20 fg ml 1) anti-ttg antibody in 10 min. the sensitivity of the electrode sensor was 1297.94 µacm 2pg 1 with dpv and found highly specific to only anti-ttg antibody. the advantage of the sensor is that it requires one drop (6µl) of blood to detect the disease only in 20 min.

Patent filing number:	201811002588
Date of filing:	23-jan-18
Title:	Process for the synthesis of nanoparticles possessing anti-cancer activity from pinus roxburghii bioactive fraction
Status:	Filed
Inventors Name:	Reena V. Saini, Adesh Kumar Saini, Reena Kumari
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer nanobiotechnology
Brief description (100 words):	The present invention discloses a process for the synthesis of silver nanoparticles by using bioactive fraction of pinus roxburghii needles and the resultant composition shows powerful anticancer property against lung cancer cell lines. evaluation of the anticancer activity of the composition showed powerful synergistic effect of the herbal extract with silver nanoparticles. whereas the effective dose (ic50 value) for cytotoxic activity of butanol extract alone using mtt assay was 158.1plus minus1.43 ?g per ml and 174.0 plus minus1.23 ?g per ml on a549 and eac cells, respectively, dose of pinus roxburghii silver nanoparticles was drastically less and showed significant cytotoxic activity at only 11.20 plus minus1.28 ?g per ml and 47.02 plus minus1.11?g per ml respectively in both cell lines. further, the anticancer composition also increased the reactive oxygen species in

the target cells causing their death due to oxidative stress.

Patent filing number:	201811005529
Date of filing:	14-feb-18
Title:	Dna based electrochemical biosensor kit and uses thereof
Status:	Filed
Inventors Name:	Rupak Nagraik, Dinesh Kumar, Ankur Kaushal
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology
Brief description (100 words):	The present invention is based on biosensor based disease diagnosis. in this lipl32 gene based 5- amino labeled probe was fabricated onto the surface of multi-walled carbon nanotubes per gold nanoparticle (mwcnt/au-np) electrode using 1-ethyl-3-(3-dimethylaminopropyl carbodiimide) (edc)-n-hydroxysuccinimide (nhs) cross linking chemistry. different concentrations of leptospiral ss-dna ranging from 1.5-320 ng per µl were further hybridized with the already immobilized 5-amino labeled probe and the corresponding electrochemical changes in terms of cyclic voltammetry (cv) and differential pulse voltammetry (dpv) were measured using potentiostat. the biosensor was able to detect as low as .015 fg per 6µl concentration of leptospral ss-dna. the sensitivity of the developed biosensor was found to be 264.5 (µa percm2) per ng.

Patent filing number:	201811007618
Date of filing:	28-feb-18
Title:	Enzymatic method for synthesis of precursor of bioactive peptide
Status:	Filed
Inventors Name:	Neha Thakur and Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioactive peptides synthesis
Brief description (100 words):	This invention relates to synthesis of precursor of bioactive peptide utilized as synthetic potent antagonist specially of narcotic drugs and used to reverse the effects of opoids specially in opoid overdose case using thermostable and alkaline microbial protease produced by mutant of bacillus sp. apr-4. in this study enzymatic method of synthesis of precursor of bioative peptide was evaluated. precursor of three bioactive peptides viz., dynorphin and endomorphin were synthesized with the use of thermosatble and alkaline protease produced with 40mm of carboxyl component and 60mm of amino

component of various amino acids in reaction mixture under controlled assay condition.

Patent filing number:	201811007619
Date of filing:	28-feb-18
Title:	A method for biodegradation of synthetic dyes by mycelia of trametes elegans
Status:	Filed
Inventors Name:	Astha Tripathi and Sukrit Sagar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biodecolorization
Brief description (100 words):	Wild white-rot fungus trametes sp. was collected from chail forest, himachal pardesh and identified as trametes elegans on the basis of traditional and molecular taxonomy. in this study t. elegans was used for degradation and cecolorization of six different synthetic dyes i.e mordant orange, acid orange, ramazole brillient blue, sunset yellow-fcf, reactive black-5 and direct red-80. trametes elegans was screened on malt extract agar medium with different concentrations of above dyes. qualitative results suggested that t. elegans showed good decolorization with all the dyes. further quantitative estimation was carried out by performing high-performance liquid chromatography and all dyes were degraded by t. elegans. during degradation or decolorization of synthetic dyes t. elegans showed good production of different ligninolytic enzymes.

Patent filing number:	201811009973
Date of filing:	19-mar-18
Title:	Improved apparatus for rapid and good quality vinegar production and method thereof
Status:	Filed
Inventors Name:	Somesh Sharma, Vivek Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	Low cost vinegar generator was developed using wooden shavings.complete technology was developed for the preparation and evaluation of apple vinegar at the lab scale

Patent filing number:	201811010514
Date of filing:	22-mar-18
Title:	Therapeutic wine prepared by synergistic fermentation of whole beet root pulp and apple juice concentrate
Status:	Filed
Inventors Name:	Somesh Sharma, Shubham Pathak
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	Therapeutic wine was prepared by synergistic fermentation of whole beet root pulp and apple juice concentrate. the wine is rich in various antioxidants, phenols and had higher sensory scores by the wine tasters

Patent filing number:	201811010522
Date of filing:	22-mar-18
Title:	Thermostable bacteriocin and method thereof
Status:	Filed
Inventors Name:	Somesh Sharma, Kajal Kumari
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	The method was developed for the production of thermostable bacteriocin a novel biopreservative for the preservation of food products.

Patent filing number:	201811010846
Date of filing:	23-mar-18
Title:	Rapid process for synthesis of biodegradable starch films from non-edible starch sources
Status:	Filed
Inventors Name:	Dr. Rahul Thory
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	The present invention discloses a rapid process for synthesis of biodegradable starch film using starch from non-edible source i.e. mango kernels, in which the time of gelatinization has been reduced from 4-5 hours to less than one minute without affecting technical characteristics of the film. this has been achieved by optimizing the various parameters and carrying out heating using microwaves. the film quality is not affected at all but time of production and energy

	requirement is drastically reduced, thus making the final product economical. the films prepared by this process have desired thickness, appropriate solubility, tensile strength and rigidity which makes them ideal food packaging material.
Patent filing number:	201811013029
Date of filing:	5-apr-18
Title:	Nano biosensor based handheld device for quick diagnosis of rheumatic heart disease and method thereof
Status:	Filed
Inventors Name:	Ankur Kaushal and Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biosensor for human pathogen detection
Brief description (100 words):	Rheumatic heart disease sensor based on dna probe of s. pyogenes was developed by the immobilization of 5-nh2 labeled single stranded dna probe on to a nano-au/c-mwcnt-graphene quantum dots based screen printed electrode. the immobilized ssg-dna was further hybridized with different concentrations of isolated genomic dna of s. pyogenes and swab samples of patients suffering from the disease. the limit of detection (lod) of this method was found to be 0.0002ng/6µl and the sensitivity was found to be 1095.2 µacm-2ng-1. genosensor was found stable for 6 months with 10% loss in initial dpv current at 4 oc.
Patent filing number:	201811014450
Date of filing:	16-apr-18
Title:	composition for enhancing the content of bioactive molecules in gentiana kuroo and method thereof
Status:	Filed
Inventors Name:	ATTRI CHANDRIKA, KAUSHAL ANKUR,DHASMANA VIDUSHI GUPTA SHAGUN SETH AMIT
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Plant tissue culture
Brief description (100 words):	The present invention discloses a composition for enhancing the content of bioactive molecules in gentiana kuroo and method thereof. the present composition consists of (methyl jasmonate- 0.02 % and hormones 0.05% only). it increases the amount of gentiopicroside in gentiana kuroo by 3 fold. as a result lesser plant material is required for manufacturing drug which in turn reduces the medicine dosage

	and also reduces the overall cost of medicine leading to economic benefits for patients. thus, the present composition can be used in agro-industries for large scale cultivation of gentiana kuroo for producing gentiopicroside.
Patent filing number:	201811017743
Date of filing:	20-apr-18
Title:	An apparatus for sterilization and incubation
Status:	Filed
Inventors Name:	Kartik Chauhan, Rupak Nagraik
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioinstrumentation
Brief description (100 words):	Sterilization is a process that eliminates, removes, kills or deactivates all form of life and other biological agents present in a specific region, sterilization is done through various means which includes heat, chemical, high pressure, filtration and also have different equipments to perform these sterilization techniques which includes autoclave (wet heat method), hot air oven (dry heat method) and chemical sterilizer. various equipments used for different kind of sterilization techniques increase the cost of the equipments.so by designing one such equipment which is capable of performing dry heat, wet heat and chemical sterilization which help in reduce the cost of the equipments as well as the space occupied by the equipments and in additional water bath is also added for incubation.
Patent filing number:	201811018065
Date of filing:	11-may-18
Title:	A method for extraction of essential oil extract from pleurospermum brunonis and uses thereof
Status:	Filed
Inventors Name:	Dr. Anuradha Sourirajan, Dr. Kamal Dev, Prakriti Nidhi, Rajan Rolta
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Phtyomedicine
Brief description (100 words):	The present invention discloses an essential oil from pleurospermum brunonis benth for use as antifungal agent. pleurospermum brunonis

	is a medicinal herb of immense importance with diverse pharmacological spectrum. the essential oil can be use directly to develop improved topical formulation for treating fungal infections in humans.

Patent filing number:	201811018237
Date of filing:	15-may-18
Title:	Green synthesized process for zinc oxide nanoparticles using a plant extract of murraya koeingii and its
Status:	Filed
Inventors Name:	Avinash, Pankaj Kumar Chauhan, Rupak Nagraik, Somesh Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology
Brief description (100 words):	A simple green synthesized process for zinc oxide nanoparticles was established using zinc acetate and sodium hydroxide in aqueous medium. zinc oxide nanoparticles are known to be multi-functional inorganic nanoparticles with its lot of medical applications. nanoparticle were synthesized using murraya koeingii leaves and characterized by uv-vis spectroscopy, ftir, sem, and dls techniques. anti-bacterial efficacy of green synthesized zno nanoparticles were assessed by agar well diffusion assay with different concentrations. the technology is novel because it avoids the high expensive material as compared to other methods and also shorts the synthesis time. the size of nanoparticles was come to be found to be 1-100nm. the zone of inhibition is more than 20-28mm in diameter which is of great interest in biomedical activities.

Patent filing number:	201811018377
Date of filing:	16-may-18
Title:	A method for purification and characterization of versatile peroxidase (hybrid peroxidase) from wild trametes versicolor
Status:	Filed
Inventors Name:	Dr. Astha Tripathi and Neha Thakur
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Enzyme purification
Brief description (100 words):	Wild white-rot fungus trametes sp. was collected from chail, himachal pardesh and identified as trametes versicolor on the basis of traditional and molecular taxonomy. trametes versicolor was inoculated in liquid culture medium for estimation of versatile

peroxidase (vp) for 20 days. reactive black-5 and abts both were used as substrate for estimation of vp while in all previous studies only abts was used as a substrate. reactive black-5 gave better yield in comparison to abts. reactive black-5 is a synthetic dye and used for dyeing wool and fabrics. the purification procedure included ammonium sulphate precipitation, anion exchange chromatography and gel chromatography. the results showed intact single band of 45kda in 200mm concentration of sodium acetate buffer (ph-5.0) eluted by 0-500mm nacl for 200min flow rate of 3 ml.min-1 stained with silver staining method

Patent filing number:	201811018382
Date of filing:	16-may-18
Title:	A gene encoding dual enzyme aminopeptidase/endoglucanase from thermophilic bacterium bacillus sp. pw2 (ku711838)
Status:	Filed
Inventors Name:	Dr. Anuradha Sourirajan, Divyanshi Sharma, Dr. Kamal Dev
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Recombinant industrial enzymes
Brief description (100 words):	This invention relates to a gene encoding thermophillic endoglucanse isolated from bacillus sp. pw2 (ku711838) of tattapani hot spring, himachal pradesh, india. bacillus sp. pw2 (ku711838) produces cellulase, which is active and stable from 60°c to 90°c. the enzyme is active between ph 6- 8. the protein encoded by the isolated gene is identified as aminopeptidase/endoglucanase homolog. the protein has homology with two enzymes viz., aminopeptidase and endoglucanase, which renders it unique. domain analysis shows that protein belongs to zinc- peptidase superfamily. domain hits include m42 peptidase and endoglucanase. the gene will be used as a tool for recombinant expression and large scale production of the thermostable hydrolytic enzyme/s (cellulase/ aminopeptidase) for industrial applications.

Patent filing number:	201811018597
Date of filing:	18-may-18
Title:	A psychro-halophilic rhodonellum psychrophilum strain gl8 and pigments thereof
Status:	Filed
Inventors Name:	Dr. Kamal Dev, Garima Bisht, Dr. Anuradha Sourirajan, Dr. Vikas

	Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Microbial, pharma and food biotechnology
Brief description (100 words):	The present invention discloses a red pigment producing r. psychrophilum strain gl8 isolated from the water sample of saline himalayan lake. the red pigment produced by r. psychrophilum strain gl8 showed antibacterial and antifungal activity. the red pigment also showed antioxidative potential better than ascorbic acid. therefore, red pigment produced by r. psychrophilum strain gl8 has potential in health, food, cosmetic, textile etc.

Patent filing number:	201811019763
Date of filing:	26-may-18
Title:	Low cost and eco-friendly process for production of biodiesel from biowaste
Status:	Filed
Inventors Name:	Saurabh Kulshreshtha, Sunny Bindra
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Renewable energy
Brief description (100 words):	Biodiesel has been reported as renewable, green fuel with better engine-emission properties and microalgae (like c. pyrenoidosa) derived biodiesel is a step towards the sustainable supply of liquid fuel to drive the world economies. in the present investigation, biowaste [dairy wastewater (dww) and rice straw hydrolysate (rsh)] was used as natural feedstock for the growth of c. pyrenoidosa. the better yield was obtained by using dww as media for the growth of microalgae. the biodiesel produced was composed of high molecular weight fatty acid methyl esters (fame), thus confirming its purity. physicochemical properties of the biodiesel produced were analyzed and compared with the petrodiesel and with standard analytical methods (astm-d6751 and en 14214:2010).

Patent filing number:	201811020547
Date of filing:	29-may-18
Title:	A nanocomposite electrochemical biosensor system and uses thereof
Status:	Filed
Inventors Name:	Rupak Nagraik, Dinesh Kumar, Ankur Kaushal, Shagun Gupta
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology

Brief description (100 words): The present invention relates to development of lipl32 gene based nanocomposite biosensor for the detection of leptospirosis causing leptospira interrogans. a nanocomposite using cysteine, poly amido amine and graphene quantum dots (cys-pamam-gqd) was fabricated on the surface of a carboxylated multiwalled carbon nanotubes (nano-au/c-mwcnts) gold electrode. the 5'-amine labeled lipl32 ssdna probe was immobilized on to the surface of nanocomposite fabricated electrode and different concentrations of leptospiral ssg-dna were allowed to hybridize with the immobilized probe. the corresponding electrochemical changes were recorded in the form of cv using methylene blue as redox indicator. the sensor showed 603.8 ua/cm2 per ng sensitivity and 0.0007 ng per 6ul limit of detection (lod). the surface characterization studies were carried out using fe-sem.

Patent filing number: 201811020479
Date of filing: 31-may-18
Title: Improved process for production of oligosaccharides from agar using novel psychrophilic bacteria isolated from himalayas.
Status: Filed
Inventors Name: Dr. Kamal Dev, Mukesh K Dogra, Sonum Sharma, Dr. Anuradha Sourirajan
Department: Faculty of applied sciences & biotechnology
Specialized area of Patent Biotechnology
Brief description (100 words): The present invention discloses an improved process for production of oligosaccharides from agar using novel psychrophilic bacteria isolated from himalayas. the oligosaccharides are produced from agar in a simple, eco-friendly and economical manner. agar is degraded into oligosaccharides by using a novel psychrophilic bacteria pseudomonas frederiksbergensis strain d thus eliminating the need of toxic chemicals, costly enzymes and sophisticated equipments for production of oligosaccharides. the process can be used in food and pharmaceutical industries for large scale production of oligosaccharides in a very simple, eco-friendly and economical manner.

Patent filing number: 201811020673
Date of filing: 1-jun-18

Title:	Biological decaffeination of coffee by hyper thermo alkaliphile para geobacillus toebii strain sm1 and method thereof
Status:	Filed
Inventors Name:	Dr. Kamal Dev,Saptarshi Mandal, Dr. Anuradha Sourirajan, Garima Bisht
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biological decaffeination
Brief description (100 words):	The invention relates to the isolation of hyper thermophilic caffeine degrading microorganism and use of its enzyme machinery for decaffeination of coffee at high temperature. parageobacillus toebii sm1 is a unique hyperthermophile and alkaliphile bacterial strain that can degrade and tolerate high concentration of caffeine and xanthine derivatives (xanthine, therophylline, theobromine) at temperature as high as 85 °c. using parageobacillus toebii sm1 enzyme system, coffee could be decaffeinated while brewing. 3. parageobacillus toebii sm1 enzyme system could be used for waste water treatment emerging from coffee and xanthine derivative based industries.

Patent filing number:	201811021212
Date of filing:	6-jun-18
Title:	A strict-halophilic salinicoccus roseus strain gl34 and pigments thereof
Status:	Filed
Inventors Name:	Dr. Kamal Dev, Dr. Anuradha Sourirajan, Garima Bisht
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Microbial pigments
Brief description (100 words):	This invention relates to the isolation of strict halophilic salinicoccus roseus strain gl34 (hence forth referred as s. roseus) from water sample of pangong tso lake, leh -ladhak, india. the bacterial strain produces pink pigment, gram-positive, non-motile, cocci-shaped cells. the pink color pigment was extracted using methanol froms. roseusgl34. purified pigment showed antimicrobial activity against escherichia coli (9±0.81 mm), mtcc 277 (candida albicans) (15.66±0.47 mm), h1086 (saccharomyces cerevisiae) (11.33±0.47 mm), atcc 90028 (candida albicans) (14.33±094 mm). in case of dpph radical scavenging assay, the pigment showed higher radical scavenging activity with ic50 value 3.744µg/ml. the uv absorbance spectra of the pink pigmentshowed maximum absorption close to 450-490nm. based on antimicrobial and antioxidant properties, pink pigment has vast potential as food colorant, food preservation, and

food supplement

Patent filing number:	201811022736
Date of filing:	18-jun-18
Title:	Rhizome extract of bistorta macrophylla enhanced the antifungal activity of fluconazole and amphotericin b and method thereof.
Status:	Filed
Inventors Name:	Anjali Kashyap, Shivani Shukla, Rajan Rolta, Dr. Vikas Kumar, Prof. Anuradha Sourirajan, Prof. Kamal Dev
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioenhancers of antifungal antibiotics
Brief description (100 words):	The present invention discloses that methanolic extract of rhizome of bistorta macrophylla has antifungal activity against candia strains. methanolic extract showed the presence of phenolics and tannins, flavonoids, carbohydrates and alkaloids. methanolic extract of rhizome of bistorta macrophylla showed complete cell death of s. cerevisiae and candida strains (fungicidal activity) with zone of inhibition diameter very similar or more than fluconazole and amphotericin b. moreover, methanolic extract of rhizome of bistorta macrophylla showed enhancement of antifungal activity against s. cerevisiae and candida strains when combined with fluconazole and amphotericin b. the methanolic extract of rhizome of bistorta macrophylla increase the bioactivity of existing antifungal agents such as fluconazole and amphotericin b and can be used to formulate new antifungal drugs to increase the efficacy and reduce dosage and time to treat candida infections.

Patent filing number:	201811031009
Date of filing:	20-aug-18
Title:	A method for cultivation of wild irpex lacteus fungi
Status:	Filed
Inventors Name:	Isha Sharma and Dr. Astha Tripathi
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Medicinal mushroom cultivation
Brief description (100 words):	Irpex lacteus are white rot fungi normally grow on dead wood. it belongs to genus polyporus. it is traditionally used as drug formulations in traditional chinese medicine. common name of irpex lacteus is milky white toothed polypore. mycelia of irpex lacteus contain many nutrition compounds, such as protein, polysaccharides

and glycoprotein. pharmacological effect of irpex lacteus had drawn significant attention recently. irpex lacteus mycelial extract had shown significant anticancer activity. irpex laceus fruiting bodies were collected from kasauli forest solan. mycelia of the wild irpex lacteus were cultivated using sawdust as substrate. spawn run of mycelia was done using wheat grains. mature fruiting body of mushroom was harvested after 18 days of incubation at 25°c.

Patent filing number:	201811032607
Date of filing:	30-aug-18
Title:	Nano biosensor based handheld device for detection of gentiopicroside and method thereof
Status:	Filed
Inventors Name:	ATTRI CHANDRIKA, KAUSHAL ANKUR, GUPTA SHAGUN, DHASMANA VIDUSHI
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Plant tissue culture, biosensor
Brief description (100 words):	Disclosed is a nano biosensor based handheld device for quick diagnosis of gentiopicroside using plant samples of gentiopicroside producing plants. the detection takes less than 5-10 minutes, optimally 10 minutes. the biosensor consists of gold multi-walled carbon nanotube electrode on which a layer of different elicitors (pectin, chitosan, methyl jasmonate, salicylic acid) with 1 mm [k3fe(cn)6] in the ratio of 1:4 is coated for detection of gentiopicroside. it can efficiently detect gentiopicroside in response to reduction of the electron mobility of 1 mm [k3fe(cn)6] due to antioxidant property of gentiopicroside present in the plant extract of gentiopicroside producing plants (5-6 µl). it can be used in pharmaceutical industries where sophisticated instruments are not available.

Patent filing number:	201811032947
Date of filing:	2-sep-18
Title:	Methanolic extract of berginia ligulata leaves and rhizome as bioavailability enhancer of fluconazole and amphotericin b to control candidiasis
Status:	Filed
Inventors Name:	Shivani Shukla, Anjali Kashyap, Rajan Rolta, Akash Sharma, Dr. Vikas Kumar, Prof. Anuradha Sourirajan, Prof. Kamal Dev

Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioenhancers of antibiotics
Brief description (100 words):	The invention discloses that methanolic extract of rhizome and leaves of bergenia ligulata has antifungal activity against candia strains. methanolic extract of rhizome and leaves of bergenia ligulata showed enhancement of antifungal acivity against s. cerevisiae and candida strains when combined with fluconazole and amphotericin b. the methanolic extract of rhizome and leaves of bergenia ligulata increase the bioactivity of existing antifungal agents such as fluconazole and amphotericin b and can be used to formulate new antifungal drugs to increase the efficacy and reduce dosage and time to treat candida infections.

Patent filing number:	201811032946
Date of filing:	2-sep-18
Title:	Chloroform sub-fractions of methanolic extract of rhizome of rheum emodi as potent antibacterial drugs against e. coli and k. pneumonia and as antioxidant in food preservation
Status:	Filed
Inventors Name:	Rajan Rolta, Akash Sharma, Dr. Vikas Kumar,Prof. Anuradha Sourirajan, Prof. Kamal Dev
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioactive phytocompounds
Brief description (100 words):	The methanolic extract of rhizome of r. emodi was subjected to sequential fractionations using hexane, cholorform, ethyl acetate and aqueous sub-fractions. the different solvent fractions were tested for antibacterial assay against b. subtilis, s. aureus, e. coli and k. pneumonia using agar well diffusion method and broth dilution method to determine minimal inhibitory (mic) concentration. the measurement of ic50 value showed that chloroform sub-fraction has highest antioxidant potential as measured by dpph and frap assay. the fic data clearly showed synergistic activity between uv-vis spectral analysis of chloroform sub-fractions (i, ii, and iii) of r. emodi showed the appearance of dual peaks at 300 nm and 500 nm for fraction i and at 300 nm for fraction ii and iii. based on lc-ms peaks, we identified major phyto-compound such as emodin-d4, rhein-13c6 (fraction i); chrysophanol dimethyl ether (fraction ii); emodin-d4 and derivative of resveratrol (fraction iii).

Patent filing number:	201811046522
Date of filing:	12-sep-18
Title:	Antimicrobial efficacy and synthesis of biogenic zinc oxide nanoparticles using a plant extract of wild himalayan ficus palmata.
Status:	Filed
Inventors Name:	Avinash, Pankaj Kumar Chauhan, Rupak Nagraik, Somesh Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology
Brief description (100 words):	The following study reveals a new method based on green synthesis for synthesizing zinc oxide nanoparticles using ficus palmata leaves extract. zinc oxide was synthesized dissolving equimolar(1m) concentration of zinc acetate and sodium hydroxide in aqueous medium. the leaf extract of ficus palmata was added to the above solution for the synthesis of nanoparticles. the synthesis of nanoparticles was confirmed by uv-vis spectroscopy, ftir, sem, and dls techniques and developed nanoparticles size was found to be in the range of 20-25 nm. further the antibiogram efficacy of green synthesized zno nanoparticles were assessed by agar well diffusion assay and mic (minimum inhibitory concentration) test which showed the inhibition at the concentration of 0.3906 mg/ml and it was found that the zone of inhibition was in the diameter range 20-25mm.

Patent filing number:	201811034501
Date of filing:	13-sep-18
Title:	The essential oil and its constituent phytocompounds of citrus aurantium as non-toxic, broad spectrum, and synergistic drug candidate for candidiasis
Status:	Filed
Inventors Name:	Prakriti Nidhi, Rajan Rolta, Dr. Vikas Kumar, Prof. Kamal Dev, Prof. Anuradha Sourirajan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Herbal antifungals from essential oils
Brief description (100 words):	The present invention discloses that the eos of citrus aurantium act as synergistic bioenhancers of clinically used drugs fluconazole and amphotericin b for treating candidiasis, thereby enhancing their effects at low doses. more significantly, the most abundant phytocompounds present in essential oil of citrus aurantium exhibited no toxicity and stronger binding with selected fungal target receptors i.e. pdb id: 1iyl (nmt-myristoyl transferase) and 1eai

(cytochrome p450 14 alpha –sterol demethylase).

Patent filing number:	201811034499
Date of filing:	13-sep-18
Title:	A method for pretreatment of agro-industrial lignocellulosic waste biomass to produce fermentable reducing sugars for use in biofuel production
Status:	Filed
Inventors Name:	Karan Surya and Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biofuel production
Brief description (100 words):	Generating fermentable sugars from lignocellulosic biomass is most energy intensive and expensive step in biofuel production leading to its high than conventional fossil fuels. the present invention reports a process with energy and time efficient treatment of agro-industrial lignocellulosic waste i.e. apple pomace, for release of fermentable reducing sugars, using combination of physical, enzymatic and hydrothermal techniques. the process takes about 1n hour to complete and produce 43.1g of reducing sugars per 100g of dried apple pomace without using chemicals. the spent biomass still could be utilized as manure/fertilizers in agricultural fields which facilitates environment friendly disposal of this waste.

Patent filing number:	201811034669
Date of filing:	14-sep-18
Title:	Synergistic soilless medium for enhanced yield of crops and method of preparation thereof
Status:	Filed
Inventors Name:	Nitika Thakur and Sunil Thakur
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Agricultural microbiology
Brief description (100 words):	field soils in containers do not provide the natural growth environment like fields for better plant growth due lack of aeration, drainage, water holding capacity, shallow depth and limited volume of a container. thus, soil is replaced in containers by soilless growing media which provide appropriate physical and chemical properties necessary for better plant growth and yield.the present invention discloses a synergistic soil-less medium for enhanced yield of crops and method of preparation thereof. the present synergistic mixture of

	soilless medium is made up of vermicompost, vermiculite, coco peat and rhizobium its preparation and use is very simple, eco-friendly and economical. reused, sterilized and biofertilizer treated plastic bags are used to replace the costly containers for planting.
Patent filing number:	201811035174
Date of filing:	18-sep-18
Title:	Phytocompounds from essential oil of mentha longifolia as synergistic, broad spectrum drug candidates for candidiasis.
Status:	Filed
Inventors Name:	Prakriti Nidhi, Rajan Rolta, Dr. Vikas Kumar, Prof. Anuradha Sourirajan, Prof. Kamal Dev
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Herbal antifungals
Brief description (100 words):	The present invention discloses that the essential oil of mentha longifolia act as synergistic bioenhancers of clinically used drugs fluconazole and amphotericin b, thereby enhancing their effects at low doses. more significantly, the phytocompounds characterized in essential oil of mentha longifolia had better potential against selected fungal receptors i.e. pdb id: 1iyl (nmt-myristoyl transferase) for broad spectrum antifungal drug target and 1eai (cytochrome p450 14 alpha –sterol demethylase) for azole drug target. they were found to be nontoxic compared to standard anti-fungal drugs like amphotericin b.
Patent filing number:	201811036459
Date of filing:	27-sep-18
Title:	An ointment for wound healing consists of hexane extract of moringa oleifera seeds
Status:	Filed
Inventors Name:	Prakrati Garg, Aaliya Ali, Dr. Saurabh Kulshreshtha, Dr. Rohit Goyal, Dr. Azhar Khan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Health care
Brief description (100 words):	An efficient wound healing formulation prepared from hexane seed extract of moringa oleifera. the potential was verified on mice using incision and excision model system and validated by comparison to povidone iodine as standard

Patent filing number:	201811036458
Date of filing:	27-sep-18
Title:	An ointment for wound healing consists of hydro alcoholic extract of moringa oleifera seeds
Status:	Filed
Inventors Name:	Prakrati Garg, Aaliya Ali, Dr. Saurabh Kulshreshtha, Dr. Rohit Goyal, Dr. Azhar Khan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Health care
Brief description (100 words):	An efficient wound healing formulation prepared from hydroalcholic seed extract of moringa oleifera. the potential was verified on mice using incision and excision model system and validated by comparison to povidone iodine as standard

Patent filing number:	201811037033
Date of filing:	1-oct-18
Title:	Biodegradable broad spectrum antimicrobial food packaging film and method thereof
Status:	Filed
Inventors Name:	Dr. Rahul Thory
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	The present invention discloses a biodegradable broad spectrum antimicrobial food packaging film synthesized from mung bean starch and contains a synergistic combination of natural antimicrobial agents viz. thymol, eugenol and curcumin. the antimicrobial agents act synergistically to kill/prevent growth of the microorganisms in food without effecting the quality of the said film. the said film has also improved properties of thickness, water vapor transmission rate and solubility which further help in retaining the original flavor of the packed food. the process of synthesizing the film is rapid and energy efficient owing to replacement of conventional, time consuming heating techniques with microwave heating. the gelatinizing process of the films in present process takes only 35-45 seconds compared to 3-4 hours by conventional methods.

Patent filing number:	201811045728
Date of filing:	4-dec-18
Title:	Antifungal compositions prepared from essential oil of

	pleurospermum brunonis with fluconazole and amphotericin b as bioenhancers of the antibiotics and uses thereof
Status:	Filed
Inventors Name:	Prakriti Nidhi, Rajan Rolta, Prof. Kamal Dev, Dr. Anuradha Sourirajan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Antifingal bioenhancers of antibiotics
Brief description (100 words):	The present invention discloses essential oil extracted from leaves of p. brunonis exhibits strong synergism with fluconazole and amphotericin b. the major phytocompounds identified in essential oil of p. brunonis include dipentene, alpha-pinene, terpinolene and sedanolide. all the 4 compounds showed strong binding with antifungal receptors of candida albicans, namely nmt-myristoyl transferase (a broad antifungal spectrum drug target with pdb id: 1iyl) and cytochrome p450 14 alpha–sterol demethylase (azole drug target with pdb id: 1eai). thus, dipentene, alpha-pinene, terpinolene and sedanolide are predicted as potent drug targets for treating candidiasis.

Patent filing number:	201811047746
Date of filing:	17-dec-18
Title:	Process for the green synthesis of zinc nanopaticles using bergenia ciliata rhizome extract
Status:	Filed
Inventors Name:	Kanika Dulta, Pankaj Chauhan, Vinod Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology
Brief description (100 words):	Antibacterial activity was screened against four bacterial strains namely gram -ve bacteria (escherichia coli, pseudomonas aeruginosa and salmonella typhii) and gram +ve bacteria (staphylococcus aureus by agar well diffusion method. nutrient agar plates were prepared and swabbed using sterile l-shaped glass rod with 100 µl of 24 h mature broth culture of individual bacterial strains. the wells were made by using sterile cork borer wells were created into each petriplate. varied concentrations of extract and nps were used to assess the activity of the nanoparticles. the compounds were dispersed in sterile water and it was used as a negative control. simultaneously the standard antibiotics streptomycin (50mg/5ml) as positive control were tested against the bacterial pathogens.

Patent filing number:	201811049851
Date of filing:	29-dec-18
Title:	Broadspectrum polyherbal formulation for treatment of neo-natal eye infections
Status:	Filed
Inventors Name:	Nitika thakur, Jyoti Kumari and Monu Sharma
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Pharmaceuticals
Brief description (100 words):	The innovators after careful study of the problem, came up with innovative solution of adding chemical compounds viz. natamycin and tobramycin to extracts of herbs, to achieve the twin20 benefits of broad efficacy in a single composition, against both microbial and fungal infections at much reduced concentrations of the chemical compounds, thus eliminating side effects. the composition consists of polyherbal extracts, antimicrobial compound tobramycin(0.2-0.4%, optimally 0.3%) and antifungal compound natamycin (4%-6%, optimally 5%).owing to presence of polyherbal extracts, it has manifold beneficial effects for the eyes apart 25 from simply curing the infection. the formulation is quite effective against bacteria(staphylococcus aureus, listeria monocytogens and escherichia coli) and fungi candida albicans. only a single drop (approximately 6 µl) applied 2-3 times is effective for the treatment of eye infections and is free from any irritation, redness and damage to the eyes.

Patent filing number:	201811049887
Date of filing:	30-dec-18
Title:	A biosensor for detecting salmonella and process of producing the same
Status:	Filed
Inventors Name:	Kritika Saini. Ankur Kaushal, Shagun Gupta, Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biosensor based detection of food borne bacteria
Brief description (100 words):	Salmonella enterica is one of the most frequently reported pathogen causes food poisning.in present study,a rapid dna based sensor using specific 5´-nh2 labeled single stranded dna probe was developed against stn gene of salmonella enterica.the probe was immobilized on screen printed gold electrode using mercaptopropionic (mpa) acid and 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide:n-hydroxysuccinimi

de based cross linking chemistry.the developed sensor was highly specific having sensitivity of 193.32 (a/cm2)/ng with lower limit of detection of 132.25 pg/6 micro l.the sensor was found stable for 6 months on storage at 4°c and takes only 15 min for detection of salmonella enterica.

Patent filing number:	201811049881
Date of filing:	30-dec-18
Title:	antifungal composition prepared from essential oil of leaves of citrus pseudolimon and bioavailability enhancer of antifungal antibiotics
Status:	Filed
Inventors Name:	Prakriti Nidhi, Ruchi Kumari, Prof. Kamal Dev, Prof. Anuradha Sourirajan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bio enhancers of antibiotics
Brief description (100 words):	This invention relates to developing potent antifungal formulations based on essential oil of leaves of citrus pseudolimon. the invention also provides a cheaper and sustainable source for the development of antifungal therapeutics from the leaves of citrus pseudolimon. the medicinal plants offer a wealth of phytocompounds, including essential oils (eos), which can be explored for antifungal activities. this study provides a sustainable and cheap source of essential oil from leaves of citrus pseudolimon, that showed antifungal activity against candida strains. the essential oil extracted from the leaves of citrus pseudolimon also enhanced the bioavailability (synergistic effect) of fluconazole and amphotericin b by 5 to 8 folds respectively. essential oils of citrus pseudolimonshows synergistic effects with amphotericin b and fluconazole against s. cerevisiae (h1086),candida albicans (atcc90028) and candida albicans (mtcc277).

Patent filing number:	201811050078
Date of filing:	31-dec-18
Title:	Broad spectrum aqueous extract with antibiotic activity from citrus pseudolimon and method thereof
Status:	Filed
Inventors Name:	Nitika thakur and Apurva Bhardwaj
Department:	Faculty of applied sciences & biotechnology

Specialized area of Patent	Agricultural microbiology and pharmaceuticals
Brief description (100 words):	Present invention discloses for the first time a broad spectrum, water soluble natural antibiotic extract from a specific variety of citrus fruit known as ‘galgal’ in vernacular language (scientific name- citrus pseudolimon). the extract can be dried to give free-flowing dry powder which can be easily formulated into suitable dosage forms e.g. sachet, tablets, capsules etc. and used as a broad spectrum natural antibiotic because it shows powerful antimicrobial activity against both- gram positive (s.aureus) as well as gram negative bacteria (e.coli). the activity is quite high and at par with the chemical/synthetic antibiotic viz. streptomycin (positive control). it is free from side-effects e.g. nausea, diarrhea, acidity, loss of appetite etc. caused by synthetic antibiotics. the method of extraction is simple and does not require much sophisticated machinery.

Patent filing number:	201811050079
Date of filing:	31-dec-18
Title:	Bioactive immunoboosting fractions from extracts of pine needles bio-waste and method thereof.
Status:	Filed
Inventors Name:	Reena V. Saini, Adesh Kumar Saini, Reena Kumari, Henok Gulilat Azalework
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer immunotherapy
Brief description (100 words):	The present invention discloses bioactive immunoboosting fractions from extracts of pine needles bio-waste (fallen and green needles of pinus roxburghii). extracts of various solvents were prepared using soxhlet extraction at 20-25oc and the solvents methanol, petroleum ether, ethyl acetate, chloroform and butanol. maximum bio-activity was obtained in ethyl acetate fractions using the peripheral blood mononuclear cell (pbmc) assay. ethyl acetate fractions from both green and fallen 5 needles had powerful immune boosting properties, with ec-50 values of 35.82± 1.04 and 25.58± 1.04 respectively on pbmc as compared to other fractions. the fractions can be dried and the phytochemicals obtained can be used to formulate suitable dosage forms e.g. tablets, capsules etc. for use as immune-boosters in cancer patients undergoing radiotherapy, chemotherapy etc.

Patent filing number:	201811050086

Date of filing:	31-dec-18
Title:	Biosynthesis of bimetallic nanoparticles of silver and copper using stephania glabra alcoholic extract.
Status:	Filed
Inventors Name:	Reena V. Saini, Adesh Kumar Saini, Eshu Singhla, Prachi Vaid
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer nanobiotechnology
Brief description (100 words):	Present invention discloses a co-reduction process for the biosynthesis of bimetallic nanoparticles of silver and copper using stephania glabra alcoholic extract. the silver nanoparticles were found to have average size of 131nm, copper nanoparticles 141nm and bimetallic nanoparticles 162 nm. the anti-cancer potential of the silver, copper and bimetallic nanoparticles was analyzed by mtt assay and the bimetallic particles were found to have much higher activity than silver or copper nanoparticles alone. the ic50 value of bimetallic nanoparticles was 76micro g/ml in comparison to 112 micro g/ml for silver nanoparticles and 264 micro g/ml for copper nanoparticles in pc3 (prostate cancer) cancer line. in a549 cells (human lung carcinoma), the ic50 value of bimetallic nanoparticles was 29 micro g/ml in comparison to 34 micro g/ml for silver nanoparticles and 139micro g/ml for copper nanoparticles.

Patent filing number:	201811050122
Date of filing:	31-dec-18
Title:	A method to development of low calorie kinnow based herbal beverage
Status:	Filed
Inventors Name:	Rajat Singh,Somesh Sharma, Pankaj Chauhan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Food technology
Brief description (100 words):	Low calorie kinnow based beverage was developed using different herbal mixtures. the drink was evaluated and was found rich in different nutrients and had good sensory characteristics.

Patent filing number:	314823
Date of filing:	12-feb-19
Title:	A novel sterilization and incubation chamber
Status:	Filed
Inventors Name:	Kartik Chauhan, Rupak Nagraik

Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioinstrumentation
Brief description (100 words):	The present invention relates to a biotechnology apparatus wherein a laminar airflow cabinet has been combined in a novel way with an incubator to make a portable laminar airflow cabinet cum incubator that is more reliable, and has reduced weight and occupies less space. at the base of the apparatus, an incubator is installed and above the incubator laminar flow cabinet is placed. the new apparatus is constructed in such a way to make new apparatus compact, portable and less expensive.

Patent filing number:	314824
Date of filing:	12-feb-19
Title:	Air purification device
Status:	Filed
Inventors Name:	Praibha Thakur, Keshav Kumar, Inshan Sharma, Praveen Chauhan, Kartik Chauhan, Pradeep Kumar and Sankhajit Pramanik
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology
Brief description (100 words):	Air pollution is one of the most serious problems in the world and creating risk to our health and food security day by day. rapid industrialization, transportation, waste dumping problems and even agriculture generating prominent degree of pollutants in to the environment and reducing the quality of air. hence, there is an intimidation to the quality of life as well as the natural beauty that can sunken the root for an economically sound and environmentally safe future of the world. potential pollutants from air will be treated in an effective and cheapest way by using hyperactive and novel micro algae powered bio-system.

Patent filing number:	201911005723
Date of filing:	13-feb-19
Title:	Portable electronic device for quick detection of the food poisoning microbe listeria monocytogenes using biosensor
Status:	Filed
Inventors Name:	Kritika Saini, Ankur Kaushal, Shagun Gupta, Dinesh Kumar
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biosensor based detection of food borne bacteria
Brief description (100 words):	Present invention discloses a portable biosensor for quick detection

of food poisoning microbe listeria monocytogenes. in this a novel electrochemical dna biosensor using a specific 5 nh2 labeled single stranded dna probe was developed against plca gene of listeria monocytogenes. the probe was immobilized on screen printed gold electrode using 1-ethyl-3-(3-dimethylaminopropyl) carbodiimide: nhydroxysuccinimide and mercaptopropionic acid based cross linking chemistry. the sensor was highly specific with a sensitivity of 5061.9(?a/cm2)/ng and lower limit of detection was 111.124 fg/6 ?l. the sensor was stable for 6 months at 4°c and results are obtained in just 15 minutes.

Patent filing number:	201911005622
Date of filing:	13-feb-19
Title:	A novel sterilization and incubation chamber
Status:	Filed
Inventors Name:	Kartik Chauhan, Er. Rupak Nagraik
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioinstrumentation
Brief description (100 words):	Sterilization and incubation are the two different and main processes in the labs. sterilization refers to any process that eliminates, removes, kills, or deactivates all forms of life and other biological agents andincubator are the device used to grow and maintain microbiological cultures or cell cultures. the incubator maintains optimal temperature, humidity and other conditions. so by designing one such equipment which is capable of performing dry heat, wet heat sterilization and incubation will help in reducing the cost of the equipments as well as the space occupied by the equipments. this instrument is based on the combination of the heat sterilization and water bath. in this instrument, autoclave, hot air oven and water bath are attached in such a manner that the energy produced in any of these chamber is utilized by another chamber. as a result there is less electricity and space consumption.

Patent filing number:	201911010808
Date of filing:	20-mar-19
Title:	A synergistic anti-fungal composition of essential oil extracted from needles of juniperus communis with antibiotics for treating candidiasis
Status:	Filed

Inventors Name:	Prakriti Nidhi, Rajan Rolta, Prof. Kamal Dev, Prof. Anuradha Sourirajan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Bioenhancers of antibiotics
Brief description (100 words):	Essential oils and their active phytocompounds can be explored as a resource to enhance or modify the potency of antibiotics, which have lost efficacy due to emergence of drug resistance in fungal pathogen. the present invention discloses that the, essential oil extracted from the leaves (needles) of j. communis showed synergistic effect when combined with the antiobiotics amphotericin b and fluconazole. essential oil reduced the dosage of the antibiotics by ~ 10- 100 folds. the essential oil alone or essential oil in combination with antibiotics can be use directly to develop improved topical or oral formulation for treating fungal infections in humans and animals. our invention also provides a sustainable source of eo of j. communis by the use of needles than berries of the said plant.

Patent filing number:	201911015725
Date of filing:	19-apr-19
Title:	Novel method for enhancement of production of astaxanthin from microalga haematococcus pluvialis
Status:	Granted
Inventors Name:	Pradeep Kumar, Sourabh Kulshreshtha, Sankhajit Pramanik and Brijbhushan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology
Brief description (100 words):	Astaxanthin is known as the “king of carotenoids”. the carotenoid pigment astaxanthin is fat-soluble and considered to be one of the most valuable super antioxidant with a wide range of applications in the food coloring agent, feed additives for the poultry and aquaculture industries, cosmetics, pharmaceuticals and neutraceutical industries. with extraordinary potency, cost and increase in demand, astaxanthin is one of the high-value micro algal products of the future globally. so there is a need to increase the production of astaxanthin to make this compound readily available for various future applications at affordable prices. in the present study we have already standardized various physiochemical parameters for the large scale production of astaxanthin and further, novel bioprocess and technology will be developed for hyper production of astaxanthin from h. pluialisis, which needs inputs in

these areas.

Patent filing number:	201911015726
Date of filing:	19-apr-19
Title:	Novel process for production of liposome encapsulation of astaxanthin
Status:	Filed
Inventors Name:	Pradeep Kumar, Sourabh Kulshreshtha, Sankhajit Pramanik and Brijbhushan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Biotechnology/pharmaceutical
Brief description (100 words):	Astaxanthin is known as the “king of carotenoids”. natural astaxanthin has significantly greater antioxidant capacity than the synthetic one. clinically proven that it is much stronger than vitamin c and e, green tea, coq 10 and resveratrol. with extraordinary potency, cost and increase in demand, astaxanthin is one of the high-value microalgal products of the future globally. the poor stability and water insolubility of astaxanthin greatly reduce the bioavailability and limit its applications in nutraceutical, agriculture, and medicine. therefore, it is necessary to develop methods to broaden the range of application of astaxanthin. in this context, encapsulation is effective in providing solutions related to the use of astaxanthin various applications and make this compound readily available for various applications at affordable prices.

Patent filing number:	201911022427
Date of filing:	6-jun-19
Title:	Immunomodulatory/anti-inflammatory steroidal lactone compound and method for preparing the same.
Status:	Filed
Inventors Name:	Gaurav Chandan, Reena V Saini
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer immunotherapy
Brief description (100 words):	The present invention relates to steroidal lactone compound, and method for preparing the same using extract from leaves of a datura stramonium.the steroidal lactone compound have immunomodulatory and anti-inflammatory activity. in particular the steroidal lactone is 12 deoxy-withastramonolide having a molecular formula c28h38o6 and the process for the preparation of said

	compound comprising of: selecting a source material; shade drying the source material; successive cold percolation type extraction; acid base extraction; isolation of the compound using silica gel column chromatography; and purification of the of the compound using column chromatography.
Patent filing number:	201911024277
Date of filing:	19-jun-19
Title:	Immunomodulatory/anti-inflammatory steroidal lactone compound daturlin and method for preparing the same
Status:	Filed
Inventors Name:	Gaurav Chandan, Reena V Saini
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Cancer immunotherapy
Brief description (100 words):	The present invention relates to steroidal lactone compound,and method for preparing the same using extract from leaves of a datura stramonium.the steroidal lactone compound have immunomodulatory and anti-inflammatory activity.in particular the steroidal lactone is daturilin (21,24-epoxy-1-oxowitha-2,5,25(27)-trienolide) having a molecular formula c28h36o4 and the process for the preparation of said compound comprising of:selecting a source material;shade drying the source material;successive cold percolation type extraction; acid base extraction;isolation of the compound using silica gel column chromatography;and purification of the of the compound using column chromatography.
Patent filing number:	201911027500
Date of filing:	9-jul-19
Title:	Herbal gel formulation containing essential oil of mentha longifolia for oral candidiasis
Status:	Filed
Inventors Name:	Prakriti Nidhi, Poonam Negi, Kamal Dev, Anuradha Sourirajan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Herbal pharmaceutics
Brief description (100 words):	The present invention relates to the development of mentha longifolia essential oil (eoml) based antifungal topical gel formulation for treating oral candidiasis (fungal infection of the mouth/ oral trush) primarily in infants and children. five different gel

formulations were prepared using different ratios of carbapol and sodium cmc and tested for in vitro efficacy in terms of anti-fungal activity against c. albicans. the texture and rheology of the formulations are being studied. of all the formulations, f1 formulation containing 5 % carbapol exhibited best anti-fungal efficacy, which was 5-20 fold more than the anti-fungal activity of eoml alone. the amount of eoml present in the formulation (10 mg/ g) is much lower than the reported ld50 of eoml (470 mg/ kg body weight in rats), thus revealing the gel formulation as a safe and effective remedy for oral candidiasis.

Patent filing number: 319571
Date of filing: 12-jul-19
Title: Portable laminar airflow cabinet cum incubator
Status: Filed
Inventors Name: Kartik Chauhan, Ankur Kaushal, Rupak Nagraik, Brij Bhushan, Manoti Vyas, Saumya Bharti, Rashika Saproo, Ruchi, Himanshu; Anand, Rajnessh
Department: Faculty of applied sciences & biotechnology
Specialized area of Patent Biotechnology
Brief description (100 words): The present invention relates to a biotechnology apparatus wherein a laminar airflow cabinet has been combined in a novel way with an incubator to make a portable laminar airflow cabinet cum incubator that is more reliable, and has reduced weight and occupies less space. at the base of the apparatus, incubator(7) is installed and above the incubator laminar flow cabinet is placed. the laminar airflow cabinet is divided into a laminar air flow working area(5) and equipment area(6). the equipment area(6) is situated behind the laminar air flow working area(5) and is joined to the laminar air flow working area(5) by suitable connecting means. the invention is combination of two different instruments i.e. laminar air flow and the incubator. the new apparatus is constructed in such a way to make new apparatus compact, portable and less expensive.

Patent filing number: 201911032547
Date of filing: 12-aug-19
Title: Composition comprising essential oil and solvent extracts of artemisia annua as bioavailability enhancer of fluconazole and amphotericin b to manage candidiasis

Status:	Filed
Inventors Name:	Ms. Anshika Sharma, Ms. Prakriti Nidhi, Mr. Rajan Rolta, Prof. Kamal Dev, Prof. Anuradha Sourirajan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Antifungal phytomedicines
Brief description (100 words):	The present invention discloses that methanolic and petroleum ether extract of aerial part of a. annua has antifungal activity against candida strains. methanolic and petroleum ether extracts of a. annua showed complete cell death of candida strains (fungicidal activity) and enhancement of antifungal activity against fungal strains when combined with fluconazole and amphotericin b. the methanolic, petroleum ether extracts and essential oil of aerial part of a. annua can be used to formulate new antifungal drugs to increase the efficacy and reduce dosage and time to treat candida infections.the extracts and essential oil alone or essential oil in combination with antibiotics can be use directly to develop improved topical or oral formulation for treating fungal infections in humans and animals.

Patent filing number:	201911032821
Date of filing:	13-aug-19
Title:	Probiotic drink and process for the prepeartion
Status:	Filed
Inventors Name:	Dinesh Kumar, Harris Khan
Department:	Faculty of applied sciences & biotechnology
Specialized area of Patent	Probiotic product development
Brief description (100 words):	The invention relates to a probiotic drink and a process for the preparation of this drink. particularly this invention relates to a novel probiotic drink which is good for health. in this claim a probiotic drink and process for the preparation thereof is disclosed. probiotic drink comprises 70to85 % by weight buckwheat extract and 3to7 % v/v starter culture of lactobacillus rhamnosus culture / bacteria, having a cell count of about 1011 cfu / ml and 15to25 % by weigh of flavouring compound. this is a novel probiotic product prepared using buckwheat.

Patent filing number:	1819/del/2015
Date of filing:	18-jun-15
Title:	Novel nanographene based composite for water treatment application and method of synthesis thereof.

Status:	Filed
Inventors Name:	Pardeep Singh, Pankaj Raizada, Pooja Shandilya
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	In 1972, tio2 photocatalyst was used in water splitting and exhibited unique properties such as high photocatalytic efficiency and good stability. yet, due to some drawbacks like large band gap and narrow range of light absorption hindered the practical application of tio2, therefore, finding a suitable visible light responsive photocatalyst became integral. hoffmann et al. reviewed numerous benefit of photocatalysis focused on photocatalytic degradation of pollutants present in water. when light with energy equal to or greater than band gap energy of photocatalyst falls on semiconductor surface, electrons are stimulated from valence band (vb) to conduction band (cb) of photocatalyst

Patent filing number:	201611036282
Date of filing:	24-oct-16
Title:	Nanocomposite gel for oil spill remediation and method thereof
Status:	Filed
Inventors Name:	Dr. Amit Kumar, Ajay Kumar, Gaurav Sharma
Department:	Faculty of basic sciences
Specialized area of Patent	Nano-chemistry
Brief description (100 words):	The present invention discloses nano-fe3o4 loaded polyacrylamide/-cyclodextrin (fpc) particles for oil spill remediation /recovery of oil from oil spills in a cost-effective and efficient manner. the particles on coming into contact with oil, swell to form a gel and can be easily separated from water by use of magnets. the particles absorb 10-15 times their own weight of oil and can be squeezed mechanically to extract the oil of nearly pure grade. the gels can be reused again and again upto 5-6 times with only minor loss of extraction efficiency. the nanocomposite can be easily manufactured at commercial level, as the manufacturing process is simple. the ferrite/pam cross-linked network performs adsorption and suction of the oil. the floating property of the nanomaterial gel of present invention is related to the hydrophobic surface of nanocomposite, which repels the water surface to increase the water displacement volume of the particles.

Patent filing number:	201611037781
Date of filing:	4-nov-16
Title:	Nano cobalt iron biochar for recycling of used/waste oil and method thereof
Status:	Filed
Inventors Name:	Dr. Amit Kumar, Ajay Kumar, Gaurav Sharma
Department:	Faculty of basic sciences
Specialized area of Patent	Nano-chemistry
Brief description (100 words):	The present invention discloses a novel nano cobalt iron biochar for the recycling of waste oil /used oil in an eco-friendly and economical manner. the same consists of biochar treated with cobalt nitrate hexahydrate and ferrite nitrate nonahydrate. ferrites are themselves highly magnetic and stable too. cobalt ferrites are more magnetic than simple fe3o4 due to magnetic character of cobalt. use of cobalt and iron salts makes the nanoparticles magnetic, enabling the 10 easy removal by use of magnets. the nano cobalt iron biochar is remarkably efficient for engine oil regeneration. the optimum concentration of the biochar for removal of contaminants is 4.5 %. regenerated oil meets appropriate quality standards.

Patent filing number:	201711004067
Date of filing:	3-feb-17
Title:	Synergistic graphene sand nano composites for antibiotic degradation in waste water and method thereof.
Status:	Filed
Inventors Name:	Pankaj Raizada, Pooja Shandilya, Rashi Dhiman, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	Traditionally, chemical oxidation, coagulation, flocculation, sedimentation and adsorption processes have been used to purify both domestic and industrial wastewater. however, these methods do not fulfill the stringent quality parameters of potable water. recently, tremendous progress is seen in application of semiconductor based photocatalytic processes for wastewater treatment. many outdated semiconductor photocatalysts such as tio2 and zno have been widely used as photocatalyst and exhibit substantial photocatalytic activity but its large band gap (3.2 ev) and only function under uv light (2-4% of solar spectrum) restricted its practical application for solar energy conversion (fujishima and honda, 1972;linsebigler et al., 1995).

Patent filing number:	201811010039
Date of filing:	19-mar-18
Title:	Photocatalyst for removing biotic and abiotic pollutant present in water
Status:	Filed
Inventors Name:	Pardeep Singh, Adesh K. Saini, Pankaj Raizada, Pooja Shandilya, Divya Mittal
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	During last three decades, semiconductor based photocatalytic processes have attracted great interest in resolving water pollution problem and fulfill clean energy demand. it is regarded as an important approach for decontamination of water as it can destroy wide range of both abiotic and biotic pollutants present in wastewater. during semiconductor based photocatalysis, light with photonic energy greater than the band gap of a semiconductor, excites an electron from the filled valence band (vb) to the empty conduction band (cb). this excitation of electrons from vb to cb causes the formation of excited electron (e^{-}cb) and hole (h+vb) pair.

Patent filing number:	201811017744
Date of filing:	20-apr-18
Title:	Fluorine doped graphene based slurry type photocatalytic system for water purification
Status:	Filed
Inventors Name:	Pardeep Singh, Adesh K. Saini, Pooja Shandilya, Pankaj Raizada, Divya Mittal
Department:	Faculty of basic sciences
Specialized area of Patent	Fabrication of photocatalyts for water purification
Brief description (100 words):	Water pollution is one of the most threating problems that the world is facing in modern era. due to the rapid development of industrialization and urbanization, acute shortages of clean water sources have attracted enormous attention all over the world. the increased discharge of contaminants and pollutants into the natural water resources tends to increase gap between clean water demand and availability of water resources. phenol and 2, 4-dinitrophenol are typical examples of toxic phenolic compounds which are used in petrochemical industry and as a pesticide in agriculture and is released into surface water through its manufacturing and application processes.

Patent filing number:	201811017745
Date of filing:	11-may-18
Title:	Conversion of graphene into photocatalyst for waste water treatment antibacterial efficacy thereof
Status:	Filed
Inventors Name:	Pardeep Singh, Adesh K. Saini, Pooja Shandilya, Pankaj Raizada, Divya Mittal
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	Due to modern civilization and industrialization, environmental pollution has become a major threat to the environmental engineers and researchers in both developing and developed countries [1-3]. conventionally, coagulation, flocculation, sedimentation and adsorption based methods have been used to treat industrial wastewater. however, these methods do not meet the stringent quality standards of potable water leading to the requirement of highly innovative technologies in order to mitigate the water pollution [4]. recently, semiconductor photocatalytic processes have shown great potential in resolving some of serious challenges, especially in tackling water pollution problem and clean energy demand [5, 6].

Patent filing number:	201811018238
Date of filing:	15-may-18
Title:	Synthesis of magnetically separable graphitic carbon nitride based photocatalyst and methods thereof
Status:	Filed
Inventors Name:	Pankaj Raizada, Anita Sudhaik, Adesh K. Saini, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	The pharmaceutical products used worldwide that enters into aquatic environment polluting water system due to presence of hazardous contaminant which find their way into various water sources (brausch and rand, 2011). antibiotics that are found to be toxic to the ecosystem enter via sewages of pharmaceuticals industries, hospitals and other medical facilities. development of antibiotic resistant bacteria is major problem and oxytetracycline (otc) is one of the most often detected tetracycline in water bodies (richardson et al., 2005). manyconventional methods have been used in past for water purification such as filtration, coagulation, sedimentation, adsorption

and reverse osmosis.

Patent filing number:	201811019023
Date of filing:	21-may-18
Title:	Natural liquid herbicide and method thereof
Status:	Filed
Inventors Name:	Dr. Mamta Sharma
Department:	Faculty of basic sciences
Specialized area of Patent	Plant physiology
Brief description (100 words):	The present invention discloses a natural herbicidal formulation which is prepared from withania somnifera leaf leachate, pinus wood ash, and water. withania leaf leachate contains phytochemicals in large quantity which has herbicidal effect against weeds. wood ash attaches to the surface of plant and decreases transpiration which in turn effect photosynthesis negatively in plants. since, the said formulation is based on crop waste as well as domestic /unutilized waste, it provides a non-systemic, nontoxic, biodegradable, and environmental friendly method of controlling plants. this herbicidal formulation is more reliable and efficient in use than the commercially used herbicide, glyphosate. further, this formulation can discriminate between wanted and unwanted plants which cannot be done by commercially used herbicides.

Patent filing number:	201811019305
Date of filing:	23-may-18
Title:	Energy efficient process for extraction of cellulose from pine needles bio-waste
Status:	Filed
Inventors Name:	Neeraj Gupta
Department:	Faculty of basic sciences
Specialized area of Patent	Biomass conversion
Brief description (100 words):	The present invention discloses a process to convert pine needle bio-waste into industrially useful products viz., cellulose, and 5-hydroxymethyl furfural. the cellulose has been isolated from pine needles which are main cause of forest fires, thereby utilizing bio-waste which in turn makes the process cost effective. secondly, the bio-waste can be converted into cellulose in just 10-20 minutes. this has been achieved by replacing the conventional heating techniques with microwave irradiation. the cellulose from the pine

needle bio-waste has also been converted into another industrially important product viz., 5-hydroxymethyl furfural which is achieved by using a combination of novel chitosan thiomers based heterogeneous catalyst and just two drops of sulphuric acid in low temperature conditions and aqueous solvent. the process and the catalyst used in this invention is much efficient and requires comparatively less time and temperature with high yield.

Patent filing number:	201811022583
Date of filing:	16-jun-18
Title:	Rapid process for the synthesis of 5-hydroxymethyl furfural
Status:	Filed
Inventors Name:	Neeraj Gupta
Department:	Faculty of basic sciences
Specialized area of Patent	Organic synthesis
Brief description (100 words):	The present invention discloses a rapid process for the synthesis of 5-hydroxy methyl furfural (hmf) which is energy efficient, economical, rapid and environment friendly. same has been achieved by use of a novel chitosan based heterogeneous catalyst under acidic conditions which drastically increases the product yield. the process also facilitates easy and rapid isolation of the product. also, use of microwave irradiation reduces fuel consumption by decreasing heating time and process time to just 30 minutes. the optimal yield of product is about 72%.

Patent filing number:	201811023694
Date of filing:	26-jun-18
Title:	Graphitic carbon nitride based metal free nanocomposites for pesticide degradation and bacterial disinfection
Status:	Filed
Inventors Name:	Pankaj Raizada, Anita Sudhaik, Adesh K Saini, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treament
Brief description (100 words):	Since the exploration of photocatalytic activity of tio2 by fujishima and honda almost 40 years ago, variety of metallic semiconductor photocatalytic materials such as metal oxide, metal sulphide and noble metal have been employed for water purification [1-2] as an alternative to precious/toxic metals, carbon based metal-free

materials such as carbon nanotubes (cnts), fullerene, graphene oxide and carbon nitride have received considerable attention due to their applications in energy conversion and storage, chemical synthesis and waste water purification techniques [3].

Patent filing number:	201811030271
Date of filing:	12-aug-18
Title:	A method for dielectric relaxation in bacatio3 material for multilayer ceramic capacitor
Status:	Filed
Inventors Name:	Dr. Mamta Shandilya, Dr. Shweta Thakur, Dr. Radheshyam Rai, Dr. Rajesh Kumar
Department:	Faculty of basic sciences
Specialized area of Patent	Materials science
Brief description (100 words):	Ba1-xca xtio3 relaxor material for x = 0.10, 0.15, 0.20, 0.25, have been fabricated by a hydrothermal method. pure-phase x-ray diffraction patterns were observed and the samples have a phase with a tetrahedral structure at room temperature for all the compositions. fesem image of ba1-xca xtio3 powder shows uniform morphology with the increment of ca element. small grains with average grain sizes of ~30±5nm uniformly distributed over the mesocrystals. dielectric measurements indicated diffused phase transition behavior for x = 0.10, 0.15, 0.20, 0.25. increasing the ca content improved the diffusivity of relative permittivity er at high temperatures.

Patent filing number:	201811031068
Date of filing:	20-aug-18
Title:	A solar cooking system based on preheated water to reduce co2 emission
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Er Ankit Gupta, Prof Raja Sekhar Y, Prof SS Chandel
Department:	Faculty of basic sciences
Specialized area of Patent	Solar energy
Brief description (100 words):	According to uncdm, it will earn 17.2 carbon credits for the university. further to increase the performance of the plant, preheated water from flat plate collector was supplied to the plant. this enabled steam formation inside heat pipe one hour prior to normal winter days hours. 500 l of hot water was additionally supplied to curb

	jaundice outbreak. use of preheated water for steam generation saved another half commercial lpg cylinder, which in turn has reduced 8,608.71 kg of co2 emission, earning 8.6 more carbon credits.
Patent filing number:	201811031209
Date of filing:	21-aug-18
Title:	Green synthesized tio2 nanofluid for enhanced thermal storage capacity of (ch2oh)2
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Ankush Chauhan, Ritesh Verma, Allah Dekama Jara, Dr. Mamta Shandilya
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	Tio2 nanoparticles were synthesised from neem leafs by green synthesis. preparation of two solutions of tio2 based nanofluid with surfactant ctab and without surfactant was done. both the solutions were kept undisturbed for determining their stability on the bases of visual sedimentation. it was observed that tio2-(ch2oh)2 nanofluid prepared without surfactant has no visual sedimentation for 10 hours. few mm layer has been observed at the bottom of the test tube. after 20 hours the particles were partially dispersed with sedimentation. on the other hand, tio2-(ch2oh)2 based nanofluid had showed visual sedimentation in just 3 hours.
Patent filing number:	201811033049
Date of filing:	3-sep-18
Title:	Spin-dependent transport properties of graphite nanostructures and methods thereof
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Allah Dekama Jara, Ritesh Verma, Ankush Chauhan
Department:	Faculty of basic sciences
Specialized area of Patent	Materials
Brief description (100 words):	We presented a first-principles study of spin-dependent transport properties of various exotic graphite nanostructures using non-equilibrium greens function density functional theory (negf-dft). we investigated the effect of cobalt doping on the robustness of spin-polarization in d-shaped zigzag graphene nanoribbons (d-zgnrs). the effect of dopant on the electronic structure of the

	devices was studied by using first principle ab-initio dft techniques along with spin-polarized local density approximation (slda) with the help of siesta based atk vnl. we found the high stability of materials at the minimum energy of formation at the fermi level, moreover, the net magnetic moment decreases as dopant introduced into the device.

Patent filing number:	201811033051
Date of filing:	3-sep-18
Title:	A method for construction of type ii photocatalyst for enhanced photocatalytic performance and uses thereof
Status:	Filed
Inventors Name:	Pankaj Raizada, Anita Sudhaik, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	In year 1972, semiconductor photocatalysis came under consideration for splitting of hydrogen production using tio2 mediated photocatalytic processes. fox and dulay described mechanistic approach for heterogeneous photocatalysis with special attention to catalyst fabrication, surface group alteration and surface assisted reactions. more comprehensive photocatalytic mechanism involving tio2 was demonstrated by linsebigler and co-workers. hoffmann et al. reviewed several advantages of photocatalysis focused on kinetics for photocatalytic degradation of pollutants present in water. thus, most of review papers were focused on environmental applications for removal of aqueous and gaseous pollutants.

Patent filing number:	201811033393
Date of filing:	5-sep-18
Title:	A method for fabrication of direct z-scheme photocatalyst for water purification
Status:	Filed
Inventors Name:	Pankaj Raizada, Anita Sudhaik, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	Z scheme photocatalyst was deigned to overcome the shortcomings of traditional method of waste water treatment. semiconductor photocatalysis technology has become a hot research field because of no formation of post-treatment sludge and secondary pollutants and

	serving as a promising and green technology for its potential applications in the removal of organic contaminants and solar energy conversion. semiconductor photocatalysts are chemically stable and inert in aqueous medium thus can be recycled. tio2 has attracted much attention as photocatalyst for waste water treatment since fujishima and honda applied tio2 as the photoanode for water splitting, in 1972
Patent filing number:	201811033392
Date of filing:	5-sep-18
Title:	Ag3vo4 modified phosphorus and sulphur co-doped graphitic carbon nitride as high-dispersed photocatalyst for phenol mineralization and e. coli disinfection
Status:	Filed
Inventors Name:	Pankaj Raizada, Anita Sudhaik, Adesh K.Saini, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	Water can be considered most valuable reserve among all natural resources that should be conserved, treated and recycled in scientific way for sustainable growth. among various sustainability practices, semiconductor mediated photocatalysis candidatures as most alluring and promising technology to directly utilize solar energy to resolve environmental issues. till now, different conventional techniques have been used for water purification i.e. coagulation, sedimentation, reverse osmosis, filtration, adsorption, chemical and biological. efficiency of these remedial techniques is not very high for purification of water containing complex matrix of various pollutants like phenols, dyes, pharmaceutical, organic solvents and household chemicals.
Patent filing number:	201811033394
Date of filing:	5-sep-18
Title:	A system of converting bioi into magnetic photocatalyst for wastewater treatment
Status:	Filed
Inventors Name:	Pardeep Singh, Adesh Saini, Pankaj Raizada, Anita Sudhaik, Rajesh Sharma
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment

Brief description (100 words): Nowadays, freshwater resources are fronting several problems with the rapid development of industries that lead to environmental pollution and also threaten the life of human beings [1, 2]. to solve this problem, semiconductor photo catalytic technology, has appealed great comforts of scientists with its several advantages of energy saving and environmental friendliness as well as it has wide applications in sewage disposal [3, 4].however, single component photocatalysts have many drawbacks such as poor visible light utilization, photo-generated electrons and holes
pair rapid recombination which restricted application of photocatalytic materials [5, 6].

Patent filing number: 201811035175
Date of filing: 18-sep-18
Title: A method for improving photocatalytic activity of biobr for phenol degradation
Status: Filed
Inventors Name: Pardeep Singh, Anita Sudhaik, Pankaj Raizada
Department: Faculty of basic sciences
Specialized area of Patent Photocatalytic waste water treatment
Brief description (100 words): Water pollution is emerging as one of the major concern for scientists and environmentalists in 21st century. among various organic pollutants, the discharge of phenolic compounds in water is considered as major threat due to their bioaccumulation, toxicity and stability in the environment. among phenolic compounds, phenol is widely in household products, disinfection and raw material in various petrochemical industries and oil refineries. the world health organization (who) has restricted phenol concentration in drinking water to 1 micro gram/l .so higher concentration presence of phenol possesses significant hazardous environmental toxicity.

Patent filing number: 201811035173
Date of filing: 18-sep-18
Title: Dielectric relaxation in bamgtio3 material synthesized by hydrothermal method
Status: Filed
Inventors Name: Dr. Mamta Shandilya, Dr. Shweta Thakur, Dr. Radheshyam Rai, Dr. Rajesh Kumar
Department: Faculty of basic sciences

Specialized area of Patent	Materials
Brief description (100 words):	Ba1-xca xtio3 relaxor material for x = 0.10, 0.15, 0.20, 0.25, have been fabricated by a hydrothermal method. pure-phase x-ray diffraction patterns were observed and the samples have a phase with a tetrahedral structure at room temperature for all the compositions. fesem image of ba1-xca xtio3 powder shows uniform morphology with the increment of ca element. small grains with average grain sizes of ~30±5nm uniformly distributed over the mesocrystals. dielectric measurements indicated diffused phase transition behavior for x = 0.10, 0.15, 0.20, 0.25. increasing the ca content improved the diffusivity of relative permittivity ?r at high temperatures.

Patent filing number:	201811035172
Date of filing:	18-sep-18
Title:	Prototype of natural mode indirect solar dryer for drying of ginger (zingiber officinale) in himalayan region
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Mr Ritesh Verma, Mr Humesh Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Solar energy
Brief description (100 words):	The dryer developed mainly consists of a solar collector panel and drying chamber. the solar collector is made up of 5 mm thick single layer glass, 2 mm black painted aluminum absorber plate and glass insulation which is enclosed in a casing made up of plywood. the drying chamber is made up of plywood of 3 cm thickness. different tests were carried out in order to evaluate the performance of the dryer. no load test, i.e. test without keeping any material to be dried, was performed and it indicated a temperature up to 59.2°c inside the dryer. average collector temperature recorded was 60.5°c. the dryer performance was also evaluated using ginger (zingiber officinale). the performance parameters used for evaluation included drying rate and drying efficiency.

Patent filing number:	201811036457
Date of filing:	27-sep-18
Title:	A system of artificial neural network model for precise estimation of global solar radiation
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Er Sunil Pathania, Dr. Rajeev Kumar Aggarwal

Department:	Faculty of basic sciences
Specialized area of Patent	Solar
Brief description (100 words):	Two layers feed forward network sigmoid trained with levenberg-marquardt back propagation algorithm with eleven input terminals and ten hidden layer neurons have been used to give solar radiation as an output. the model was trained, validated and tested by using measured global solar radiation data of eighteen indian locations spread over different indian climatic zones for which measured data was available. the regression coefficient was found to be 0.95967 with mean square error of 0.204. the mean percentage error, root mean square error and mean bias error between estimated and measured global solar radiation of eighteen locations have been found to be in the range of 4.16 to 4.82, 0.02 to 0.26 and -0.30 to 0.08 respectively. a graphical user interface has also been developed to find the monthly global solar radiation of any location throughout india by putting eleven input geographical parameters of the desired location.

Patent filing number:	201811036456
Date of filing:	27-sep-18
Title:	New empirical system for the estimation of global solar radiation for indian locations
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Mr Ritesh Verma, Dr. Rajeev Kumar Aggarwal
Department:	Faculty of basic sciences
Specialized area of Patent	Solar
Brief description (100 words):	A new empirical model is developed to estimate the monthly average global solar radiation. the estimated values of solar radiation for eighteen indian locations in different climatic zones of india are compared with measured values. the performance of the empirical model was evaluated on the basis of the statistical error tests: the mean percentage error, root mean square error and mean bias error. the values of mean percentage error, root mean square error and mean bias error are found to be in the range of -13.99 to 14.76, 0.00 to 15.26 and -4.73 to 6.73 respectively. small variations in the errors have made this empirical model an easy asset to determine the solar radiation data with better accuracy and with less error at places where meteorological observatories are not established.

Patent filing number:	201811036624
Date of filing:	28-sep-18
Title:	Nanoscale restraint of polar coupling in ba0.85mg0.15tio3 relaxor ferro electric
Status:	Filed
Inventors Name:	Dr. Mamta Shandilya, Dr. Radheshyam Rai, Dr. Rajesh Kumar, Ms Poonam Kumari, Mr Ritesh Verma
Department:	Faculty of basic sciences
Specialized area of Patent	Materials
Brief description (100 words):	Polycrystalline samples of lead free ba0.85mg0.15tio3 has been fabricated by a hydrothermal method. single-phase perovskite-type x-ray diffraction patterns were observed and the sample has a phase with tetragonal structure at room temperature. sem image shows the formation of spherical and cylindrical particles. the small agglomerates with apparently spherical morphologies together with cylindrical agglomerates, it indicates self-organised growth in sample. small grains with the average grain size of 40±5 are uniformly distributed over the mesocrystals. tem specimen show well-dispersed spherical barium magnesium titanate nanoparticles and diameter of these particles is around 270-300nm.

Patent filing number:	201811038020
Date of filing:	8-oct-18
Title:	A method for enhancing photocatalytic activity of eu3+- doped zno using bi2o-3 and graphene oxide for water purification
Status:	Filed
Inventors Name:	Pardeep Singh, Pankaj Raizada, Anita Sudhaik, Reena Saini, Pankaj Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	The presence of organic pollutants in wastewater is causing detrimental effects on aquatic life and successively human health. therefore, recently, advanced oxidation processes (aops) have been widely used widely for organic as well as inorganic pollutant degradation in aqueous phase [1]. photocatalysis is one of most effective method in aops for pollutant degradation. in 1972, tio2 has attracted much attention as a photocatalyst for waste water treatment since fujishima and honda used tio2 for water splitting [2]. however, due to wide band gap (3.2 ev)] its applications are limited in wastewater treatment and displayed negligible activity under visible

light irradiation [3].

Patent filing number:	201811038017
Date of filing:	8-oct-18
Title:	High dielectric lead free ba0.95ca0.05tio3 material synthesized by hydrothermal method for energy harvesters
Status:	Filed
Inventors Name:	Dr. Mamta Shandilya, Dr. Radheshyam Rai, Dr. Steven J.Milne, Dr. Rajesh Kumar
Department:	Faculty of basic sciences
Specialized area of Patent	Materials
Brief description (100 words):	Ba1-xca xtio3 relaxor material for x = 0.05, have been fabricated by a hydrothermal method. pure-phase x-ray diffraction patterns were observed and the samples have a phase with a tetrahedral structure at room temperature for all the compositions. fesem image of ba1-xca xtio3 powder shows uniform morphology with the increment of ca element. small grains with average grain sizes of ~30±5nm uniformly distributed over the mesocrystals. the observed peaks in the dielectric constant can be explaining phase transition from ferroelectric to paraelectric at temperatures 1220c. with increase in temperature, the dielectric constant increases and no any transition observed in the samples up to 400 0c. low loss at high frequency tan?=0.0071shows diffusivity 1.27±3<2 and activation energy 0.521±.015.

Patent filing number:	201811038019
Date of filing:	8-oct-18
Title:	A method for low temperatures synthesis of ba0.85ca0.15 zr0.05ti0.95o3 ceramic for capacitor application
Status:	Filed
Inventors Name:	Dr. Mamta Shandilya, Dr. Radheshyam Rai, Dr. Rajesh Kumar, Dr. Madan Lal, Sapna
Department:	Faculty of basic sciences
Specialized area of Patent	Materials
Brief description (100 words):	Lead free relaxor ferroelectric, ba0.85ca0.15zr0.05ti0.95o3 have been fabricated by hydrothermal method. single-phase x-ray diffraction pattern conforms perovskites and the samples have a phase with tetragonal structure at room temperature for all the compositions. the fesem image of ba0.85ca0.15zr0.05ti0.95o3

	powder shows needle like crystals. small grains with average grain sizes of ~10±5nm uniformly distributed over the crystals. tem specimens are typically ~100 nm thick, and the most intense diffraction rings correspond to large crystallites. dielectric investigations were carried out in the temperature range from 250c to 300 0c with frequencies range from 100 hz to 100 khz. a broad dielectric anomaly coupled with the dielectric maxima 1200c-1240c (shift tm w.r.t frequency) temperature with increasing frequency indicates relaxor behavior.
Patent filing number:	201811045729
Date of filing:	4-dec-18
Title:	A method for the biosynthesis of ag doped zno nanoparticles using moringa olifera seed extract and uses thereof
Status:	Filed
Inventors Name:	Ankush Chauhan, Swati, Ritesh Verma, Dr. Saurabh Kulshrestha, Dr. Mamta Shandilya, Dr. Rajesh Kumar
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology green synthesis
Brief description (100 words):	Ag doped zno were fabricated in this study using through a green sysnthesis approach. the results indicated that doping of ag lowers the diameter size and more uniformity of the nanoparticles due to decomposition. moringa oleifera (mo) is one of the best known medicinal plants is use as plat extract in green synthesis. fesem images of agzno nanoparticle divulge the flower like grains are developed with less agglomeration. the measurement of inhibition zones was done at the concentration of 100 mg/ml. the zone of inhibition of 18 mm and 12mm was observed around the nanoparticles at the conc. of 100mg/ml as shown in table for mrsa and e.coli respectively. however antibiotic ampicillin (+ve control) showed the inhibition zone of 30mm for mrsa and 27 for e.coli where dmso (-ve control) showed no zone against mrsa.
Patent filing number:	201811046503
Date of filing:	8-dec-18
Title:	Novel heterogeneous catalyst for conversion of carbohydrates to 5-hydroxymethyl furfural and method thereof
Status:	Filed
Inventors Name:	Neeraj Gupta, Purva Devi, Sadhana Sharma, Kanchan Sharma

Department:	Faculty of basic sciences
Specialized area of Patent	Biomass conversion
Brief description (100 words):	The present invention discloses chitosan based heterogeneous catalyst for conversion of carbohydrates into hmf. the said catalyst is synthesized totally from naturally occurring polysachharide known as chitosan. the catalyst is not mounted over chitosan but chitosan itself has been converted to a catalyst by using a novel process by the inventors. the said catalyst in presence of few drops of acid such as sulphuric acid can catalyse the dehydration reaction of carbohydrates to produce hmf. the catalyst is stable in aqueous system which makes it as an ideal catalyst for hmf production.

Patent filing number:	201811049035
Date of filing:	26-dec-18
Title:	nanosize multi-ferroic composite material and method of preparingthe same
Status:	Filed
Inventors Name:	Rajesh Sharma, Mamta Shandilya, Ritesh Verma, Pankaj Raizada
Department:	Faculty of basic sciences
Specialized area of Patent	Materials
Brief description (100 words):	(1-x)(ba0.96ca0.04tio3)-x(nife2o4) (bct-nf) multi-ferroic material for x =0.1, 0.2, 0.3, 0.4, have been fabricated by a hydrothermal method. smart material in the solid solution system, (1-x)(ba0.96ca0.04tio3)-x(nife2o4) (bct-nf) for x = 0.1, x = 0.2, x = 0.3, x = 0.4, have been fabricated by hydrothermal method. x-ray diffraction patterns for perovskite-type structure and spinel structure were observed for all the compositions. perovskite phase and spinel phase were observed in the same composite. the composition (1-x)(ba0.96ca0.04tio3)-x(nife2o4) (bct-nf) show peaks at around200ºc and 260ºc for x=0.1 and x=0.2 respectively for 1khz, 10khz,and 100khz. the magnetic saturation was observed 8, 26, 32, 36 for x=0.1, x=0.2, x=0.3, x=0.4 respectively.

Patent filing number:	201811049036
Date of filing:	26-dec-18
Title:	Copper nanoparticles (cunps) and method of producing the same
Status:	Filed
Inventors Name:	Rajesh Sharma, Sapna Thakur, Mamta Shandilya, Shweta Thakur, Ankush Chauhan

Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	Bio-nanotechnology has provided extensive research with emergence in biotechnology and nanotechnology which synthesize nanoparticles using bio-organisms like plant parts, bacteria yeasts, algae and fungi and that is more compatible with the green chemistry principles. copper nanoparticles were biologically synthesized by using the root extract and leaf extract of asparagus adscendens roxb. as a reducing agent. by treatment of aqueous solutions of cuso4•5h2o with root and leaf extract stable copper nanoparticles were formed. uv-visible study revealed quantitative formation of copper nanoparticles or characteristic absorption peak of cu nano-particles in both cases at the range of 500-700nm. these biosynthesized cu nanoparticles were characterized with the help of fourier transform infrared spectroscopy (ftir) and high resolution transmission electron microscopy (hrtem). the involvement of proteins and possible reducing agent was confirmed by ftir analysis.

Patent filing number:	201811049475
Date of filing:	27-dec-18
Title:	Nanocomposite based photocatalyst for degradation of polluting malachite green dye and method thereof
Status:	Filed
Inventors Name:	Pardeep Singh , Vishal Dutta, Sheetal Sharma, Pankaj Raizada
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic wastewater treatment
Brief description (100 words):	Photocatalysis mainly combination of two words: photo(light) and catalysis(a process where substrate participates in order to remodel the rate of chemical alteration of reactant). photocatalysis is defined as catalytic process in which the speed up of chemical reaction by direct irradiations or by irradiation of catalyst which decrease the activation energy of primary reaction. in the mid of 1970s processes of photocataysis is used for purify water from harmful micro -organisms. in 1972, fugishima and honda locate the photocatalytic splitting of water on tio2 electrodes. this occurance marked the starting of new era in heterogeneous photocatalysis. in a heterogeneous photocatalysis system, photo- induced molecular transformation or reaction occur at the surface of catalyst.

Patent filing number:	201811049888
Date of filing:	30-dec-18
Title:	Method for improving phytochemicals and antioxidant biosynthesis potential in plants
Status:	Filed
Inventors Name:	Rachna Verma, Ashwani Tapwal, Dinesh Kumar, Sunil Puri
Department:	Faculty of basic sciences
Specialized area of Patent	Mycology
Brief description (100 words):	The invention is related to a method for improving biosynthesis of phytochemicals and antioxidant potential in seeds of ethnomedicinal plant perilla frutescens comprising: preparing and multiplying inoculum of mycorrhiza on sorghum vulgare seedlings with single spore culture technique; inoculating perilla frutescens plant rhizome with an inoculum comprising root cuttings, spores and soil; growing the plant rhizome of perilla frutescens plant in the pots having autoclaved soil and sand in a polyhouse/glasshouse; and supplementing the pots of perilla frutescens plants with hoaglands solution fortnightly.

Patent filing number:	201811050133
Date of filing:	31-dec-18
Title:	iron oxide nanoparticles, iron oxide-cellulose nanocomposite and method of producing thereof
Status:	Filed
Inventors Name:	Mamta Shandilya, Sapna Thakur, Shweta Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Crystal growth
Brief description (100 words):	In this research our main focus is on synthesis of iron oxide-cellulose nanocomposite using electro spin. iron oxide nanoparticles were synthesized using sol-gel hydrothermal techniques.this method was operating at very low temperature so that growth of crystal was fine and homogeneous. nanocomposite was further used for study antimicrobial behaviour against different pathogens causing illness in human beings

Patent filing number:	201811050057
Date of filing:	31-dec-18
Title:	Zinc oxide nanoparticles and method of producing the same
Status:	Filed

Inventors Name:	Rajesh Sharma, Ankush Chauhan, Mamta Shandilya, Sapna Thakur, Susham Chauhan, Pankaj Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	Zno nanoparticles were synthesized by using cannabis, alovera and jatropha curcas and tinosporacordifolia plants leaves extracts process. these plants leave extracts contains bio-compounds like saponin, sarasapogenin, phenols, terpenoides, etc. safely used for synthesis of nanoparticles on room temperature which is safe and environment friendly. these synthesized zno nanoparticles were characterized with the help of xrd. thus, this method can be used as a rapid and environmental friendly, non-toxic and safe approach for zno nanoparticles synthesis. these synthesized nanomaterials were further subjected for antimicrobial activity. the test cultures included in this study were basillus cereus, staphylococcus aureus and klebsiella pneumoniae; both gram-negative and gram-positive bacteria. this study scientifically revealed significant zone of inhibition against such pathogenic bacteria which has many pharmaceutical applications for the control of deadly pathogens.

Patent filing number:	201811050058
Date of filing:	31-dec-18
Title:	Heterogenous photocatalyst for degradation of malachite green dye from waste water and method thereof
Status:	Filed
Inventors Name:	Pardeep Singh, Sheetal Sharma, Vishal Dutta, Pankaj Raizada
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalysis
Brief description (100 words):	The ever-growing demand to improve the quality of human lifestyle drastically encourages rapid urbanization and industrialization [1,2]. mainly, associated with accelerating progress of industrialization, which are directly linked to the release of carcinogenic, hazardous and non-biodegradable dyes in water bodies are constantly deteriorating ecological equilibrium and causes many serious diseases [3-5]. advanced oxidation processes (aops) are attractive wastewater treatment options, originally described as homogeneous methods that produce highly reactive , which has a stronger oxidation potential (2.8 ev) in water and oxidize noxious organic contaminants under climatic conditions [6-9]. however, aops suffer several roadblocks such as high cost, comparatively complicated

operations and harsh reactive conditions. aops relying on heterogeneous photocatalysis to accelerate pollutant degradation through the utilization of renewable solar energy.

Patent filing number:	201811050064
Date of filing:	31-dec-18
Title:	Nanocomposite based photocatalyst for degradation of congo red dye from wate water and method thereof
Status:	Filed
Inventors Name:	Pankaj Raizada, Vasudha Hasija, Kirti Sharma, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalysis
Brief description (100 words):	existing techniques for the removal of the contaminants form the wastewater are adsorption, physical and biological treatments, ozone treatment, microbial activity, electrochemical methods, chemical oxidation, free chlorine, chloramines, chlorine dioxide, ozone, germicidal uv radiation, and advanced filtration process which have been used in water purification plans for many years. all of these techniques hold some serious drawbacks, such as being non-economical and failing in complete degradation, the some of them also results in the formation of perilous by-products and also display low efficiency. however, chlorine and its derivatives can react with various natural carbon-based compounds in the water to form many cancer-causing disinfection byproducts (dbps).

Patent filing number:	201811049897
Date of filing:	31-dec-18
Title:	Synthesis of silver substituted mg-mn nanoferrites for application in recording media
Status:	Filed
Inventors Name:	Rohit Jasrotia, Dr. Virender Pratap Singh, Dr. Rajesh Kumar, Dr. Mahavir Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Ferrites
Brief description (100 words):	Nano-sized silver doped nanomaterials were prepared by sol-gel method for enhancing their magnetic properties.the xrd patterns reported that crystallite size was found to be in the range of 51-65 nm and a pure single phase with no additional peaks was obtained.

	fesem indicates that synthesized nanoparticles are cubic in shape agglomerated and uniformly distributed.the ftir study mainly reveals two frequency peaks in between range of 439-652 cm-1 showing the formation of spinel cubic structure.the m-h loops at room temperature depicted the increasing trend of all the three magnetic parameters such as saturation magnetization (ms), coercivity (hc), remanent magnetization (mr) for lower values of silver dopant i.e. x = 0.0, 0.1, 0.2, 0.3 and for the highest content of silver dopant i.e. x = 0.4, it decreases.this increase in values of magnetic parameters was explained on the basis of exchange interactions phenomenon.
Patent filing number:	201811050121
Date of filing:	31-dec-18
Title:	A synthesis of silver doped strontium w-type nanohexaferrites for magnetic recording application
Status:	Filed
Inventors Name:	Rohit Jasrotia, Dr. Virender Pratap Singh, Dr. Mahavir Singh, Dr. Rajesh Kumar
Department:	Faculty of basic sciences
Specialized area of Patent	Ferrites
Brief description (100 words):	Nano-sized particles of w-type hexaferrites having chemical composition srco2agxfe16-xo27 (x = 0.0, 0.1, 0.2, 0.3) were synthesized by sol gel auto-combustion technique. the structural, morphological, elemental distribution, optical and magnetic study of synthesized nanohexaferrites was studied by using techniques such as xrd, fesem, eds, ftir and vsm. from the xrd analysis, the crystallite size is found to be in the range of 51-61 nm calculated by using debye-scherrer formula which means crystallite size increases with increase in silver concentration. fesem analysis revealed that grains are hexagonal in shape. the eds spectra of the prepared samples confirming the formation of pure nanohexaferrites and elemental composition infer that no elements except strontium, cobalt, silver, iron and oxygen are present in the synthesized samples.
Patent filing number:	201811050120
Date of filing:	31-dec-18
Title:	a synthesis of lead free k0.5na0.5nbo3 ceramics at low sintering temperature
Status:	Filed

Inventors Name:	Dr. Mamta Shandilya, Mr Shammi Kumar, Mr Ankush Chauhan, Dr. Rajesh Kumar, Dr. Shweta Thakur, Prof Nagesh Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Crystal growth
Brief description (100 words):	This invention relates to the development of lead free k0.5na0.5nbo3 ceramic materials for optoelectronic properties. the effect of photoluminescence is studied at low sintering temperature so that growth of crystal is fine and homogeneous (comparison to prior art):calcination temperature is reduced to 750c;calcination time is reduced to 1h;sintering temperature is reduced to 850c from 1050c; high photoluminescence properties are observed.

Patent filing number:	201911001088
Date of filing:	9-jan-19
Title:	Sol-gel synthesized barium m-type hexagonal ferrites for high density recording media application
Status:	Filed
Inventors Name:	Mr. Rohit Jasrotia, Dr. Virender Pratap Singh, Dr. Rajesh Kumar, Dr. Mahavir Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Ferrites
Brief description (100 words):	Ba0.7nd0.3cdx/2inx/2fe12-xo19 (x = 0.0, 0.1, 0.2, 0.3) were prepared by sol-gel auto-combustion method in which ethylene glycol was used as a gel precursor . the xrd patterns showed characteristic (110), (008), (107), (114), (108), (203), (205), (206), (1011), (300), (217), (2011), (220), (2014) peaks along with the presence of secondary phase confirming the formation of hexagonal structure with an average crystallite size of 43-59 nm. fesem supports the formation of hexagonal, dense and agglomerated nanoparticles. the vibronic study using infrared radiation was carried by ftir analysis reported about the various configuration modes telling the hexagonal symmetry of prepared nanoparticles. the magnetic measurements was studied at room temperature indicates that saturation magnetization (ms) and magnetic moment (nb) found to be in the range of 40-86 emu/g and 7.97-17.23.

Patent filing number:	201911003299
Date of filing:	27-jan-19
Title:	Gold nanoparticles, nanogel composition comprising the same and a

	method for synthesis thereof
Status:	Filed
Inventors Name:	Dr. Mamta Sharma, Dr. Pankaj Thakur, Monika, Dr. Reena Saini
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	The present invention relates to a gold nanoparticle synthesized by using rhizome extract of curcuma longa, a method for synthesis of said gold nanoparticles, a nanogel composition having the said gold nanoparticles and method for preparing the same. the synthesized gold nanoparticles are found to be used as anti-bacterial, anti-fungal and anti-cancer agent or for the preparation of anti-bacterial, anti-fungal and anti-cancer medicaments. the antibacterial activity of synthesized gold nanoparticles was tested with both gram positive (bacillus subtilis) and gram negative (escherichia coli) bacterium. the results have revealed that gold nanoparticles have a great potential to inhibit the growth of bacteria.

Patent filing number:	201911005125
Date of filing:	8-feb-19
Title:	An eco-friendly natural biofertilizer/ biocontrol agent
Status:	Filed
Inventors Name:	Diya Mittal, Adesh K. Saini
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the method of producing natural biofertilizer/biocontrol agent comprises of: (i) culturing bacteria in nutrient broth media at 37c; (ii) collecting the nutrient broth upon reaching a cell density in the range of 107 to 109 cfu/ml and using the collected bacterial suspension to bacterize seeds for biofertilizer/biocontrol effects or collecting the nutrient broth upon reaching a cell density in the range of 107 to 109 cfu/ml and centrifuging to obtain supernatant and using it for biofertilizer/biocontrol effects.

Patent filing number:	201911005623
Date of filing:	13-feb-19
Title:	Materials to enhance the efficiency of solar receiver in concentrated

	solar power plant (csp)
Status:	Filed
Inventors Name:	Dr. Rajesh Kumar, Ritesh Verma, Ankush Chauhan, Satvinder Kour, Dr. Mamta Shandilya, Dr. Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Solar
Brief description (100 words):	An emphasiz on increasing the solar absorbance of the csp receiver and minimizing the thermal losses has been given. for this purpose, a series of samples will be prepared including ultra-high-temperature ceramics, spinel ferrites composites with the variation in impurities such as sic, graphene and carbon nanotubes in order to investigate the properties of these composites in comparison to traditionally used materials. in this model we are using the reflectors in order to reduce the radiation loss during re-radiation. our model mainly focusses on the utilization and synthesis of high-quality receiver material and its model which will include the coating of different layers of the prepared materials along with anti-reflective layer for minimal reflectance.

Patent filing number:	201911005624
Date of filing:	13-feb-19
Title:	A kit for identification of best harvesting time for the extraction of essential oil of mentha longifolia
Status:	Filed
Inventors Name:	Dr. Amita Kumari, Ms. Sonam Thakur, Dr. Vikas Kumar, Ms. Prakriti Nidhi, Prof. Anuradha Souriranjan
Department:	Faculty of basic sciences
Specialized area of Patent	Plant science
Brief description (100 words):	Present study deals with identification of proper harvesting time within a season for the production of maximum essential oils from leaves of mentha longifolia with maximum antifungal activity against candida albicans and fusarium oxysporum. results showed that mature plants or flowering period during the month of july is best for the harvestation of leaves for the extraction of essential oils with higher antifungal activity against c. albicans whereas younger plants in the month of may are best against f.oxysporum. study also concludes that phytocompounds 3-cyclopenten-1-one,2-hydroxy-3-(3-methyl-2-butenyl)- and piperitone oxide could be responsible for antifungal activity against c. albicans and f.oxysporum, respectively.

Patent filing number:	201911007198
Date of filing:	25-feb-19
Title:	Lead free, ferroelectric, nano sized ceramic compound (bzt-bct) for industrial use
Status:	Filed
Inventors Name:	Mamta Shandilya, Shweta Thakur, Amit Mahajan, Poonam Kumari, Radheshyam Rai
Department:	Faculty of basic sciences
Specialized area of Patent	Crystal growth
Brief description (100 words):	This invention relates to the environmental friendly hydrothermal method to developed lead free dielectric materials. this method operates at very low temperature so that crystals grown are fine and homogeneous (comparison to prior art);ferroelectric peak become more broadens due to relaxations;ferroelectric region enhanced in x(ba0.85ca0.15)tio3-(1- x)ba(zr0.15ti0.85)o3ceramic;frequency independent dielectric behaviour in tetragonal phase;pure tetragonal phase achieved at very low temperature i.e. at 150c.

Patent filing number:	201911007200
Date of filing:	25-feb-19
Title:	Method of low temperature synthesis of lead free, ferroelectric, nano sized monophasic ceramic compounds
Status:	Filed
Inventors Name:	Mamta Shandilya, Shweta Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Ferroelectric materials
Brief description (100 words):	In this research our main focus ison hydrothermal method to developed lead free and ba based relaxor dielectric materials. this method is operating at very low temperature so that growth of crystal is fine and homogeneous:lead free material is achieved;calcination temperature is reduced to 150c from 900c; reaction method is performed in closed system hence process is environmental friendly; ferroelectric peakbecome more broadened due to relaxations, therefore ferroelectric region enhanced in ceramic.

Patent filing number:	201911008270
Date of filing:	3-mar-19
Title:	Zinc oxide nanorods and method of producing the same
Status:	Filed

Inventors Name:	Rajesh Kumar, Ankush Chauhan, Ritesh Verma, Mamta Shandilya, Pankaj Raizada, Saurabh Kulshreshtha
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	Zno nanorods were synthesized by using green synthesis method. these synthesized zno nanoparticles were characterized with the help of xrd. thus, this method can be used as a rapid and environmental friendly, non-toxic and safe approach for zno nanorods synthesis. these synthesized nanomaterials were further subjected for antimicrobial activity. the test cultures included in this study were gram negative bacteria: pseudomonas aeruginosa, escherichia coli and salmonella typhi; gram positive bacteria: staphylococcus aureus; yeast: candida albicans and also found to be effective against all these funguses: sclerotinia sclerotiorum, fusarium. this study scientifically revealed significant zone of inhibition against such pathogenic bacteria which has many pharmaceutical applications for the control of deadly pathogens.

Patent filing number:	201911008271
Date of filing:	3-mar-19
Title:	A method for improving biosynthesis of phytochemicals and antioxidant potential of acorus calamus plant
Status:	Filed
Inventors Name:	Rachna Verma, Ashwani Tapwal, Dinesh Kumar, Sunil Puri
Department:	Faculty of basic sciences
Specialized area of Patent	Mycology
Brief description (100 words):	The invention is related to a method for improving biosynthesis of phytochemicals and antioxidant potential of acorus calamus plant comprising: preparing and multiplying inoculum of mycorrhiza (glomus mosseae) on sorghum vulgare seedlings with single spore culture technique; inoculating acorus calamus plant rhizome with an inoculum comprising root cuttings, spores and soil; growing the plant rhizome of acorus calamus plant in the pots having autoclaved soil and sand in a polyhouse/glasshouse; and supplementing the pots of acorus calamus plants with hoaglands solution fortnightly.

Patent filing number:	201911009449
Date of filing:	11-mar-19
Title:	Composite photocatalyst for treatment of water polluted with organic

	dyes and method thereof
Status:	Filed
Inventors Name:	Pankaj Raizada , Kirti Sharma, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalysis
Brief description (100 words):	in general mechanism of photocatalysis when light falls on the surface of semiconductor photocatalyst, activation of semiconductors takes place, electrons in valence band is excited to conduction band of the semiconductor and holes will left in the valence band. the holes in the valence band can oxidize donor molecules and react with water molecules to give oh radicals and electrons in conduction band reacts with oxygen species to give o2- radicals. the holes are consumed in the oxidation reaction and the electrons are used in reduction reaction. the produced reactive oxygen species (ros) interact with contaminants and decompose them into less harmful materials.

Patent filing number:	201911010766
Date of filing:	19-mar-19
Title:	An eco-friendly acinetobacter calcoaceticus based biofertilizer/biocontrol composition.
Status:	Filed
Inventors Name:	Divya Mittal, Reena V Saini, Adesh K Saini, Rakesh Shukla, Yashwant Singh Negi
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the acinetobacter calcoaceticus producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of acinetobacter calcoaceticus have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	201911010767
Date of filing:	19-mar-19
Title:	An eco-friendly bacillus based biofertilizer/biocontrol composition.
Status:	Filed

Inventors Name:	Divya Mittal, Reena V Saini, Adesh K Saini, Arun Kumar, Jagdish Verma, Rakesh Shukla, Yashwant Singh Negi
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the bacillus producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of bacillus have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	201911010768
Date of filing:	19-mar-19
Title:	An eco-friendly burkholderia based biofertilizer/biocontrol composition.
Status:	Filed
Inventors Name:	Divya Mittal, Reena V Saini, Adesh K Saini, Arun Kumar, Yamini Jain, Rakesh Shukla, Yashwant Singh Negi
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the burkholderia producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of burkholderia have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	201911011827
Date of filing:	26-mar-19
Title:	An eco-friendly enterobacter based biofertilizer/biocontrol composition.
Status:	Filed
Inventors Name:	Divya Mittal, Reena V Saini, Adesh K Saini, Arun Kumar, Hem Parkash Verma, Rakesh Shukla,Yashwant Singh Negi
Department:	Faculty of basic sciences

Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the enterobacter species producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of enterobacter species have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	1911011828
Date of filing:	26-mar-19
Title:	An eco-friendly klebsiella based biofertilizer/biocontrol composition
Status:	Filed
Inventors Name:	Divya Mittal,Arun Kumar, Reena V Saini, Adesh K Saini, Rakesh Shukla, Yashwant Singh Negi.
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the klebsiella species producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of klebsiella species have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	201911011829
Date of filing:	26-mar-19
Title:	An eco-friendly pantoea based biofertilizer/biocontrol composition
Status:	Filed
Inventors Name:	Divya Mittal, Arun Kumar, Reena V Saini, Adesh K Saini, Rakesh Shukla, Yashwant Singh Negi.
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the pantoea species producing anti-fungal compounds; and (b) a

	physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of pantoea species have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	201911011851
Date of filing:	27-mar-19
Title:	An eco-friendly pseudomonas based biofertilizer/biocontrol composition.
Status:	Filed
Inventors Name:	Divya Mittal, Hem Parkash Verma, Reena V Saini, Adesh K Saini, Rakesh Shukla, Yashwant Singh Negi
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the pseudomonas species producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of pseudomonas species have been cultured to a cell density of 107 to 109 cfu/ml.

Patent filing number:	201911011850
Date of filing:	27-mar-19
Title:	An eco-friendly serratia marcescens based biofertilizer/biocontrol composition
Status:	Filed
Inventors Name:	Divya Mittal, Hemparkashverma, Reena V Saini, Adesh K Saini, Rakesh Shukla, Yashwant Singh Negi
Department:	Faculty of basic sciences
Specialized area of Patent	Agriculture biotechnology
Brief description (100 words):	The present invention relates to an eco-friendly natural biofertilizer/biocontrol agent composition and method for producing and using the same. the composition comprises of: (a) bacterial cells of the serratia marcescens producing anti-fungal compounds; and (b) a physiologically suitable nutrient broth media for the growth of bacterial cells, wherein the nutrient broth is one in which bacterial cells of serratia marcescens have been cultured to a cell density of

107 to 109 cfu/ml.

Patent filing number:	201911011873
Date of filing:	27-mar-19
Title:	A hybrid ternary photocatalyst for the rapid treatment of water contaminated with rhodamine b dye and method thereof
Status:	Filed
Inventors Name:	Pankaj Raizada, Prachi Thakur, Vasudha Hasija, Pardeep Singh
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	In past decade pollution has increased considerably. the main causes contributing for pollution are burning of fossil fuels, emission from automobile exhaust, also water pollution have become a threat to human existence. main causes of water pollution are sewage and waste water, garbage and liquid waste of households, agricultural lands and factories are discharged into lakes and rivers, industries discharge, marine dumping. conventional methods of water treatment such as sedimentation, distillation, flocculation, chlorination, and coagulation have numerous drawbacks such as high energy consumption; give rise to secondary pollutants and high capital investment. thus a new technique i.e. advanced oxidation process involves mineralization of water through formation of hydroxyl radical.

Patent filing number:	201911012292
Date of filing:	28-mar-19
Title:	A process of synthesis of ag-zno nanoparticles using trillium govanianum
Status:	Filed
Inventors Name:	Ankush Chauhan, Swati, Rajesh Kumar, Saurabh Kulshreshtha, Mamta Shandilya, Sonu, Vikrant Sharma
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	Ag and zno are used in chemical and biological sensors, bactericidal agents, electronics and photoelectronic devices and have considerable bio-activity. ag-doped zno has been extensively studied for antibacterial activities and it has been found that it affects the overall optical as well as antibacterial properties of nanocomposites that depend on the shape and size as well as concentration of ag

nanoparticles5 hence the synthesis of silver-doped zinc oxide nanoparticles using plant extracts with antimicrobial properties can be useful in enhancing antimicrobial activity of nanoparticles.

Patent filing number:	201911012291
Date of filing:	28-mar-19
Title:	Z-scheme photocatalyst and a process for the preparation thereof
Status:	Filed
Inventors Name:	Pankaj Raizada, Vasudha Hasija, Pardeep Singh, Anita Sudhaik
Department:	Faculty of basic sciences
Specialized area of Patent	Photocatalytic waste water treatment
Brief description (100 words):	The current rapid industrial development causes the serious energy and environmental crises. photocatalyst provide a potential strategy to solve these problems because these materials not only can directly convert solar energy into usable or storable energy resources but also can decompose organic pollutants under solar light irradiation. however, the aforementioned applications require photocatalysts with a wide absorption range, long term stability, high charge separation efficiency and strong redox ability. unfortunately, it is often difficult for a single component photocatalyst to simultaneously fulfill all these requirements. z scheme photocatalytic systems, mimicking the natural photosynthesis process, overcome the drawbacks of single component photocatalysts.

Patent filing number:	201911012842
Date of filing:	30-mar-19
Title:	Barium strontium titanate material and method of manufacturing the same
Status:	Filed
Inventors Name:	Mamta Shandilya, Shweta Thakur, Radheyshyam Rai, Sapna Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Ferroelectric materials
Brief description (100 words):	This invention relates to the envirofriendly hydrothermal method to developed high and excellent dielectric properties. this method is in force at very low temperature so that growth of crystal is fine and homogeneous". bst is lead free ferroelectric hence is a environment friendly material for ferroelectric application (comparison to prior art): calcination temperature is reduced to 150c from 900c;ferroelectric peak become more broadens due to

	relaxations;room temperature ferroelectric region enhanced in basrtio3 ceramic.

Patent filing number:	201911012843
Date of filing:	30-mar-19
Title:	Barium zirconate titanate material and method of manufacturing the same
Status:	Filed
Inventors Name:	Mamta Shandilya, Radheyshyam Rai, Poonam Kumara, Gun Anit Kaur
Department:	Faculty of basic sciences
Specialized area of Patent	Ferroelectric materials
Brief description (100 words):	This invention relates to the eco-friendly hydrothermal method to developed high and excellent dielectric properties. this method is in force at very low temperature so that growth of crystal is fine and homogeneous. btz is lead free ferroelectric hence is an environment friendlymaterial for ferroelectric application (comparison to prior art): calcination temperature is reduced to 150c from1100c;2. pure phase of bati1-xzrxo3 was achieved by hydrothermal process; crystalline and uniform nanoparticles are formed.

Patent filing number:	201911012931
Date of filing:	30-mar-19
Title:	A process for synthesis of lead free barium, strontium titanate ba0.90sr10tio3
Status:	Filed
Inventors Name:	Dr Mamta Shandilya
Department:	Faculty of basic sciences
Specialized area of Patent	Lead free peroviskite materials
Brief description (100 words):	This invention relates to the envirofriendly hydrothermal method to developed high and excellent dielectric properties. this method is in force at very low temperature so that growth of crystal is fine and homogeneous. bst is lead free ferroelectric hence is a environment friendly material for ferroelectric application (comparison to prior art): calcination temperature is reduced to 150c from1200c;ferroelectric peak become more broadens due to relaxations;room temperature ferroelectric region enhanced in basrtio3 ceramic.

Patent filing number:	201911012932
Date of filing:	30-mar-19
Title:	A process for synthesis of silver doped zinc oxide using cannabis sativa leaf extract
Status:	Filed
Inventors Name:	Ankush Chauhan, Swati, Rajesh Kumar, Saurabh Kulshreshtha, Mamta Shandilya, Anil Kumar, Zubin Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Nanotechnology
Brief description (100 words):	Cannabis sativa has a long history of human use and its role varied depending on time and place, with uses ranging from fiber production, religious, medicinal and recreational purposes. the green synthesis of nanoparticles is a cost-effective and environmentally friendly alternative to chemical and physical methods. green synthesis of nanoparticles is a green chemistry approach that connects nanotechnology with plants. the best advantage of green synthesis is nanoparticles with small particle size and different morphologies are formed at ambient temperatures, nearly neutral ph, low costs and environmentally friendly fashion . ag and zno are used in chemical and biological sensors, bactericidal agents, electronics and photoelectronic devices and have considerable bio-activity.

Patent filing number:	201911012933
Date of filing:	30-mar-19
Title:	A process of synthesis of barium titanate zirconate bati1-xzrxo3 ceramics nanoparticles
Status:	Filed
Inventors Name:	Dr Mamta Shandilya, Dr Radheshyam Rai, Gun Anit Kaur, Dr Shweta Thakur
Department:	Faculty of basic sciences
Specialized area of Patent	Crystal growth
Brief description (100 words):	Therefore, an object of the present invention is to provide a process for the synthesis of barium titanate zirconate bati1-xzrxo3 (btz) which obviates the disadvantages associated with the conventional methods. another object of the present invention is to provide a process for the

synthesis of btz which is an environmental friendly process.

yet another object of the present invention is to provide a process for the synthesis btz where the temperature is reduced from 9000c to 1500c.

a further object of the present invention is to provide a process for the synthesis btz wherein pure phase of btz is achieved by hydrothermal process.

Patent filing number:	201911017410
Date of filing:	1-may-19
Title:	An antibacterial composition and uses thereof
Status:	Filed
Inventors Name:	Dr. Amita Kumari, Ishita Guleria, Dr. Vikas Kumar
Department:	Faculty of basic sciences
Specialized area of Patent	Plant science
Brief description (100 words):	The present study deals with the identification of the populus ciliata tree bark as a natural antioxidant and with potential antimicrobial activities. crude methanol bark extract and various fractions were screened for antioxidant analysis and antimicrobial activities against gram positive and gram negative bacteria. results revealed the highest antioxidant potential of n-butanol and ethyl acetate fractions with lower ic50 value as compared to standard, crude methanol extract and others fractions. antibacterial assay also showed higher zone of inhibition of n-butanol and ethyl acetate fractions of p. ciliata bark against tested bacterial strains. present study concluded p. ciliata tree bark as higher antioxidant and antibacterial potential agent whose n-butanol and ethyl acetate fractions were observed to be more effective than crude extract alone.

Patent filing number:	317901
Date of filing:	20-may-19
Title:	Solar organic fertilizer plant
Status:	Filed
Inventors Name:	Mamta Sharma, Anil Kumar, Rajesh Kumar
Department:	Faculty of basic sciences
Specialized area of Patent	Solar energy
Brief description (100 words):	The present invention solar-organic-fertilizer-plant is based on use of organic waste and plant biomass for fertilizer manufacturing using renewable source of energy i.e. solar radiations. solar radiations are

free/clean energy, so this design will be helpful for maximum utilization of solar energy with the help of solar storage system. · the proposed design involve organic compositing powered by solar energy stored in solar storage chamber, instead of relying on the fossil fuels now commonly used as energy sources and often, as feedstock for reactions. · the invention aim to provide the benefits of fertilization without any of these costs. the idea is to replace the centralized, fossil-fuel based fertilizer plants process with this solar energy based organic fertilizer plant. · the invention use solar power to raise the temperature of the tank so as to speed up the process of compositing. the solar storage system is equipped with valve to provide limited supply of heat to the tank.

Patent filing number: 319295
Date of filing: 2-jul-19
Title: Solar plant growth chamber
Status: Filed
Inventors Name: Mamta Sharma, Anil Kumar, Rajesh Kumar
Department: Faculty of basic sciences
Specialized area of Patent Solar energy
Brief description (100 words): The presented model of a solar panel facilitated plant growth chambers has been designed to meet the requirement for assessing the plant behaviour and great interest of plant responses to environmental variables. the presented research plant growth chamber have designed in a manner so that it differ in size, structure, material, and environmental control systems from the existing traditional growth chambers.
the objective of presented model is to provide a growth chamber equipped with controlled sunlit panel to provide controlled temperature conditions, efficient irrigation system and have been constructed for experimental plants grown in either pots or soil bins using vertical farming technique. the presented model of growth chamber is also portable (or movability) so these chambers can be used in multiple field sites for greater cost-effectiveness.

Patent filing number: 201911037067
Date of filing: 14-sep-19
Title: A process for production of biofuel from larvae of rice moth corcyra cephalonica and biofuel thereof

Status:	Filed
Inventors Name:	Komal Sharma & Aniruddha Mitra
Department:	Faculty of basic sciences
Specialized area of Patent	Biofuel
Brief description (100 words):	This is the first report of biofuel production from insects in india. this patent relates to a novel biofuel produced from larvae of the rice moth corcyra cephalonica. the invention reveals the process of extraction and refinement of grease from the larvae, followed by transesterification reaction to produce biofuel. the properties of the biofuel produced acid value, saponification value and iodine number are reported, the yield of biofuel obtained is reported, and the chemical composition of the biofuel produced is evaluated by gas chromatography-mass spectrometry, and compared with that of the insect grease from which the biofuel was produced, and also compared with the biodiesel produced from other insects.

Patent filing number:	280329
Date of filing:	11-feb-16
Title:	Flying chair
Status:	Granted
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Aeraunautics
Brief description (100 words):	The idea of designing a flying chair came into the mind en-route to holy amarnath cave. these days, there is a chopper facility provided from the base camp baltal to the holy cave. there are plenty of problems, which crop up due to the chopper, during this journey. the chopper causes air pollution, which raises the ambient temperature, which in turn melts the shivaling early. this was the motivation behind this invention flying chair. this device is battery powered and henceforth, no pollution. the flytime of this device is 15-20 mins on a single charge.

Patent filing number:	201611023982
Date of filing:	13-jul-16
Title:	System for safe overtaking and method of use thereof.
Status:	Filed
Inventors Name:	Adit Rana
Department:	Faculty of engineering & technology

Specialized area of Patent	Automobile assistance
Brief description (100 words):	This system is designed for safe overtaking using vibration monitoring system in the vehicle. the system does not need to communicate with any other vehicle by any means. it can work as a stand- alone system and can be fitted in the vehicle as an accessory. the system uses vibration detection sensors, sound sensors, multiple laser sensors, movable thermal imaging sensors. system works using vibration sensors, sound transducer, thermal imaging and multiple lasers for locating the position of the coming vehicle, speed of incoming vehicle whether vehicle is there or not. the present invention can work in all weather conditions

Patent filing number:	201711019471
Date of filing:	2-jun-17
Title:	Semi tubular solar air dryer
Status:	Filed
Inventors Name:	Adit Rana, Ranchan Chauhan
Department:	Faculty of engineering & technology
Specialized area of Patent	Agricultural assistance & equipments
Brief description (100 words):	The absorber medium for solar dryer is mainly fabricated from waste material from the industries e.g. waste aluminium chips, waste cast iron chips. the solar collector section of dryer consists of six aluminium pipes and 2kg aluminium chips underside these pipes. both the aluminium pipes and aluminium chips are act as an absorber medium. the drying chamber consists of three wire mesh trays where the agricultural product is placed to dry. this dryer can dry the agricultural products as well as chemicals and aromatic herbs

Patent filing number:	294633
Date of filing:	2-jun-17
Title:	Mobile cover.
Status:	Filed
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Mobiles
Brief description (100 words):	Mobiles are the necessity of life now a days, and we use them 24x7 for different purposes, for which most of the time we have to keep charging the mobiles but this causes a lot of heating in the mobiles which further leeds to blasts sometimes, causing a lot of harm to the

users therefor this mobile cover has been designed keeping in mind that it will dissipate lot of heat and will keep the mobile temperature down within permissible limits

Patent filing number:	201711020456
Date of filing:	12-jun-17
Title:	A machine for calculate cutting force and methods thereof.
Status:	Filed
Inventors Name:	Sashank Thapa, Akshay Pathania, Sorabh Aggarwal, Arjun Patial
Department:	Faculty of engineering & technology
Specialized area of Patent	Design
Brief description (100 words):	Cutting force can be defined as minimum amount of force required or expended by machine tool to cut a single chip out of the work material. high quality piezoelectric sensors are generally deployed for this work. in present work we had tried to deduce one such method utilizing energy spent methodology to measure cutting force. in this method of cutting force measurement a set of five to six samples is feed one by one to a moving cutter embedded with tachometer to measure speed, and voltmeter ammeter unit to measure change in current & voltage being feed to cutting spindle motor. by measuring change in power consumed in cutting process or in other words energy spent on cutting, we simply use mathematical relations and calculate cutting force of wood. this cutting force is then utilized to design cnc machine thus depicting its usability in design process.

Patent filing number:	201711021817
Date of filing:	21-jun-17
Title:	A system for blockage detection of air flow line.
Status:	Filed
Inventors Name:	Abhilash Pathania
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile engineering
Brief description (100 words):	Blockage detection of air flow line is a systematic arrangement of frc (filter regulator combination), pneumatic valve, smc pressure switch and testing sample. the air compressor sends the pressurized and dry to the successive component which is the frc unit. the frc unit input pipeline is connected to the air compressor and the output pipe is connected to the pneumatic valve. the frc unit consists of a regulation which is set at a value of 3 bar can be transferred from the unit. here

	pneumatic valve is electronically operated and it is operated at a predetermined pressure. the output of the pneumatic valve is connected with two different units by t joint. one pipeline of the pneumatic valve is connected to the testing sample as per our requirement and the other side of the pipeline is connected to the smc switch. if there is blockage occurred in the line system, it will indicate in control panel through smc switch.

Patent filing number:	201711021818
Date of filing:	21-jun-17
Title:	Productivity improvement by modification in fixture.
Status:	Filed
Inventors Name:	Bhaskar Goel, Abhilash Pathania, Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Machining of cylinder head
Brief description (100 words):	A fixture has been modified for machining of 8 cylinder heads instead of two to reduce cycle time of machining, to reduce fatigue of the operator, to increase the productivity and to reduce the cost.

Patent filing number:	294956
Date of filing:	21-jun-17
Title:	Mobile cooling pad
Status:	Granted
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Mobiles
Brief description (100 words):	This is a design of a cooling pad for mobiles, as we have cooling pads as in the case of laptops for dissipating extra heat and keeping the mobile in proper working condition

Patent filing number:	201711024722
Date of filing:	12-jul-17
Title:	A method of sensible steering assist system due to intoxication and emergency conditions and uses thereof
Status:	Filed
Inventors Name:	Adit Rana, Ranchan Chauhan, Bhaskar Goel
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile assistance

Brief description (100 words):	The invention relates to a method of sensible steering assist system due to intoxication and emergency conditions. this system will provide the stable movement of vehicle during following conditions: prevent the zigzag motion of the vehicle:control the irregular steering motion of the steering wheel in case of intoxication:it will monitor and save the idle steering phenomenon of particular driver and compare his behavior with stored data if he is found as intoxicated/or any bad health condition (heart stroke) etc. and will automatically activate the intoxicated stable steering control:it will also provide automatic sos facility during any emergency.

Patent filing number:	201711024743
Date of filing:	13-jul-17
Title:	Energy efficient impinging jet solar food dryer
Status:	Filed
Inventors Name:	Ranchan Chauhan, Adit Rana
Department:	Faculty of engineering & technology
Specialized area of Patent	Agricultural assistance & tools
Brief description (100 words):	This dryer is designed to provide maximum heat transfer efficiency of solar collector section using jet impingement techniques. this noble technique can be utilized to dry the agricultural products and chemicals. following are the key features of new design of collector system (impinging jet technology) for maximum heat exchange which increases the efficiency of existing designs. less pay-back period;extra loading capacity and tcu unit for optimized temperature and humidity range for different products.

Patent filing number:	201711024744
Date of filing:	13-jul-17
Title:	Smart fuel injection system against alcoholic drivers, teen agers and anti-theft system for intruders
Status:	Filed
Inventors Name:	Adit Rana, Ranchan Chauhan
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile assistance
Brief description (100 words):	In present invention only the actual owner of the vehicle is allowed to operate the vehicle and if his family members want to operate the vehicle and if his family members want to drive the vehicle, the

	system will generate an otp to the owner every-time and owner will provide the sufficient time for its authenticated operation (e.g. 8-10 hours etc.). in this system a unique provision is also provided that if person is little bit intoxicated then vehicle is allowed to run only in emergency mode at economy speed
Patent filing number:	296068
Date of filing:	24-jul-17
Title:	Stair climbing stretcher.
Status:	Granted
Inventors Name:	Amar Raj Singh Suri
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	For the people living in the hills, life is difficult during the times of medical emergency. it is difficult to carry patients on the stairs. it usually requires 3-4 persons to carry the patient on the stretcher. this invention will solve that problem. the patient can be placed on it and can be easily transported.
Patent filing number:	201711026909
Date of filing:	28-jul-17
Title:	Automatic ac mains cut off system on lpg gas leakage using arduino.
Status:	Filed
Inventors Name:	Brij Bhushan, Pankaj Vaidya
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	Here is a gas leakage detector circuit that detects the leakage of lpg gas and alerts the user through audio indications. the circuit operates off a 12v dc. the gas leakage circuit uses the gas sensor module from. its output goes high when the gas level reaches or exceeds certain point. a preset in the module is used to set the threshold. arduino is used to control the whole circuit. whenever there is lpg concentration of 1000ppm in the area, the output pin of the sensor module goes high and it sends the signal to arduino and after processing the signal it sends the signal to the ssr (solid state relay) which then cuts the ac mains.
Patent filing number:	296389

Date of filing:	3-aug-17
Title:	Silt erosion test rig
Status:	Granted
Inventors Name:	Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Hydro turbines
Brief description (100 words):	Silt erosion test rig is a an experimental setup which is designed to measure the erosive wear rate on the pelton turbine buckets with in a specific period of time by alternating various parameters during experimentation.

Patent filing number:	201711030962
Date of filing:	28-aug-17
Title:	A rolling and adjustable notice board.
Status:	Filed
Inventors Name:	Randhir Bhandari, Varun Jaiswal, Gaurav Gupta, Manoj Gaur, Pankaj Vaidya
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	The invention which is rolling and adjustable notice board has focused these problems through its adjustable size feature and it can store and display earlier notices according to user interest through its rolling feature list the problems that the invention is trying to solve 1. generally notice board cannot be adjusted according to the provided space. 2. generally notice board are not designed to store earlier notices displayed on it, earlier notices are stored in different locations. 3. earlier notices cannot be displayed according to user interest. notices according to user interest through its rolling feature

Patent filing number:	297124
Date of filing:	29-aug-17
Title:	Semi-rotary compressor
Status:	Granted
Inventors Name:	Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	This is semi-rotary compressor with compact and better air cooled

design for better efficiency, cooling and lubrication.

Patent filing number:	297125
Date of filing:	29-aug-17
Title:	Flying strecher.
Status:	Filed
Inventors Name:	Anil Kumar, Amar Raj Singh, Sorabh Aggarwal, Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Medical
Brief description (100 words):	The proposed design is of a flying stretcher which can be used to carry patients in rough hilly terrains. it is difficult to carry patients in hills in case of medical emergency due to rough terrain. at least 5 to 6 people are required to pick up the stretcher. it can be used to lift the patients directly from the emergency site to the nearest hospital.

Patent filing number:	297126
Date of filing:	29-aug-17
Title:	Fixture with multiloading of components.
Status:	Filed
Inventors Name:	Bhaskar Goel, Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Manufacturing
Brief description (100 words):	The present invention relates to increase the productivity, a new fixture was designed, manufactured and proved out where 8 cylinder heads are loaded at a time on two vertical plates (4 cylinder heads on each side of the fixture) utilizing full space of the machine table. we can machine the cylinder heads from both sides of the fixture as the machine table can be indexed at any angle from 0 degree to 360 degree. it has resulted into the saving of 2 minutes per cylinder head which is mainly due to saving in tool changing time and positioning time from one component to the other component. this substantial reduction in time has resulted into approx. 20% increase in production of cylinder heads and also manufacturing line is balanced.

Patent filing number:	Diary number: 12773/2017co/sw
Date of filing:	31-aug-17
Title:	Identification of obscured images using machine learning.

Status:	Filed
Inventors Name:	Preeti Kanish, Gaurav Gupta, Ankit Gupta
Department:	Faculty of engineering & technology
Specialized area of Patent	Computer sciene
Brief description (100 words):	The face is our essential and first concentration of consideration in social life, assuming a vital part in recognizing of people. computer that identify and perceive appearances could be connected to a wide assortment of practical applications including criminal acknowledgment is utilized as a part of many places these days, in sites facilitating pictures and person to person communication locales. face recognition and detection can be accomplished utilizing innovations identified with software engineering. in this study, a portion of images from the dataset were encrypted and then facial features were extracted using segmentation-based fractal texture analysis (sfta) algorithm, following feature selection using principal component analysis (pca). neural network is used to train the model for faceless recognition of an individual. our approach has shown significantly better results than the previous study, proving the efficiency of the training model.

Patent filing number:	298051
Date of filing:	2-oct-17
Title:	Stator and rotor of three phase squirrel cage induction motor.
Status:	Granted
Inventors Name:	Raj Kumar Saini, Dr.Neeraj Gandotra, Ms. Namita Saini, Shashank Thapa
Department:	Faculty of engineering & technology
Specialized area of Patent	Three phase induction motor
Brief description (100 words):	The present creation discloses the stator and rotor design of three phase squirrel cage induction motor. generally two types of slots (open and semi closed) are used utilized in three phase squirrel cage induction motors. the running cost and performance of the motors depends upon the design and shape of the slots. in open type slots due to air gap, it is difficult to maintain good power factor of the machine due to lager magnetizing current and it directly affect the efficiency as well as the operating cost of the machine. however up to some extent the air gaps can be reduced in the semi closed type slots design, but this difficulty of poor power factor can be reduced further by converting flat bottom and tooth opening of stator into round shape as shown in the geometry portion of the modified

	design. however for better torque and best power factor a combination of rectangle and oval shape bars are designed for rotor shape.
Patent filing number:	201711038485
Date of filing:	30-oct-17
Title:	Combinational compact air compressor
Status:	Filed
Inventors Name:	Robin Thakur, Nitin Rana, Anil Kumar, Ankit Thakur, Dinesh Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	The inventors of the present invention have developed an innovative and unique mechanism for achieving simultaneous compression and decompression in a single cylinder in a compressor. since compression and decompression occur in a single main housing (cylinder block), it drastically reduces the size of the compressor without effecting its performance. the inventors have carefully combined the principles of rotary as well as reciprocating compressors to achieve a compact semi- rotary compressor which is also multi stage. hence the concept is novel.
Patent filing number:	298908
Date of filing:	30-oct-17
Title:	Solar tracking system.
Status:	Granted
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar energy
Brief description (100 words):	Some remote places in india are not connected to grid power because of their geological location. so, it becomes a very costly affair to supply power to such locations. therefore, using solar rooftop systems is the only solution for this. traditional fixed type solar panels are not efficient as the sun is always moving hence solar light is not always incident on the panel, so we need to have a cost-effective solar panel which could move along with the sun.

Patent filing number:	298909
Date of filing:	30-oct-17
Title:	Cooking stove
Status:	Filed
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Environment
Brief description (100 words):	The smokeless stove is one of its kind and is one of the revolutionary innovations for domestic villagers. the primary reason of throat and lungs cancer found in the villagers is because of the smoke produced by the stove used for preparing food. the smokeless stove is truly a life saviour for the population living in villages depending on the self-made stoves. there are two significant benefits of the smokeless stove first, it produces 0% smoke, which prevents air from getting polluted. secondly, it reduces the usage of fuel as it gives more combustion in less fuel.

Patent filing number:	298910
Date of filing:	30-oct-17
Title:	Surface grinding of multi-connecting rods on horizontal surface grinding machine.
Status:	Granted
Inventors Name:	Bhaskar Goel, Sashank Thapa, Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Grinding of connecting rod
Brief description (100 words):	To utilize the whole table of horizontal surface grinding machine. it is proposed to load the number of connecting rods at one time which will help in following:reducing machining time; reducing cost; optimum utilization of machine table; reducing idle movement of machine table; reducing operators fatigue; reducing wastage of coolant.

Patent filing number:	201711038575
Date of filing:	31-oct-17
Title:	Piezoelectric signal generator to prohibit unauthorized red light crossing using a high tensile magnetic hooks unit
Status:	Filed
Inventors Name:	Adit Rana, Ranchan Chauhan
Department:	Faculty of engineering & technology

Specialized area of Patent	Public road safety assistance
Brief description (100 words):	In the present invention, a hydraulic hook unit is used to restrict the vehicle to enter into the unauthorized area during red light. as hook is magnetic it will minimize the actuating force and hydraulic hook unit is safe to catch a vehicle at high speed. in case of emergency i.e ambulance crossing camera unit catches the image of vehicle with siren and match it with neutral coding if match is verified then it will allow only one vehicle and lowers the hook as the position of the vehicle is verified by piezoelectric unit

Patent filing number:	201711038576
Date of filing:	31-oct-17
Title:	Product based temperature control system for solar dryer to prevent overheating and improve competence
Status:	Filed
Inventors Name:	Ranchan Chauhan, Adit Rana, Raj Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Agriculture tools & assistance equipments
Brief description (100 words):	The invention relates to a product based temperature control system for solar dryer to prevent overheating. it is well known that different types of food products have different level of moisture content present inside them. to remove this moisture so as to prevent the product from early deterioration and increase their shelf life, it is required that the simple drying system is incorporated which provide an optimum working condition required for a particular product. but to maintain better quality of food product in-terms of its colour, re hydration property, nutrients etc. product based temperature and humidity control system is fabricated

Patent filing number:	201711039168
Date of filing:	2-nov-17
Title:	A system of automotive assistance for minimize the fuel metering tolerance
Status:	Filed
Inventors Name:	Abhilash Pathania
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile engineering
Brief description (100 words):	Presently the technique used for the leakage testing is completely manual, which consumes a lot of time also increase the fatigue of the

operator. the process of leakage testing is as follows.
for the testing of air leakage of any automobile component, the oil seal is applied on lh & rh side of the beam, oil seal dummy shafts are used for sealing. then breather and filler plug holes plug with threading adaptor.
1. during the filler hole sealing, the operator is not aware about how much adaptor should be tightened during operation.
2. moreover, operator uses his both hands for tightening filler and breather holes simultaneously
3. in this process, the chances of butting the adaptor with beam threading misses occurs 5 times in 50 components. also over tightening of adaptor causes breakage/ wear of o rings (1 time in 80 pcs).
due to thread missing and wear of oil ring, the production of the industry decreases and the fatigue level of the operator increases

Patent filing number:	299679
Date of filing:	24-nov-17
Title:	Pen for omr sheet
Status:	Filed
Inventors Name:	Sumit Mehlwal, Ankit Thakur, Varun Sharma, Adit Rana, Anshul Sehgal
Department:	Faculty of engineering & technology
Specialized area of Patent	Writing tools
Brief description (100 words):	A unique pen is designed to save the marking time during exam. this pen is specially design to fill the circle of omr sheet in a single go so that you can save your precious time during the exam.

Patent filing number:	299680
Date of filing:	24-nov-17
Title:	Hexapod robot.
Status:	Granted
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Robotics
Brief description (100 words):	Hexapod robot can solve a lot of problems regarding mobility as it can also move on those muddy and sticky and slippery terrains where all other wheeled robots fail to grip the surface properly. hexapod robot uses the crawling mechanism to move over

unstructured environment.

Patent filing number:	299681
Date of filing:	24-nov-17
Title:	Pick and place robot.
Status:	Filed
Inventors Name:	Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Robotics
Brief description (100 words):	Pick and place robot makes our task convenient. its main function is to carry material from one place to another, the given design is suitable for use at small industries and even at home because of its compact size.

Patent filing number:	201711043038
Date of filing:	30-nov-17
Title:	Automatic cartridge type electrode holder for arc welding machines
Status:	Filed
Inventors Name:	Varun Sharma, Adit Rana, Anshul Sehgal, Suneel Dutt, Sumit Mehlwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Welding technologies
Brief description (100 words):	The designed new cartridge holder will provide the advantage of continuous process during arc welding as it will provide extra stored electrodes within the electrode holder. therefore this device can save a lot of operational time during the process and ergonomic design will provide smooth working of the process.

Patent filing number:	201811005532
Date of filing:	14-feb-18
Title:	A system for drunken driver detection and indication in vehicles and methods thereof
Status:	Filed
Inventors Name:	Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	Here is a drunken driver detector and indicator which alerts the user through led indications. the circuit operates off a 12v dc. the alcohol

detector circuit uses the mq-3 gas sensor module from. its output goes high when the gas level reaches or exceeds certain point. a preset in the module is used to set the threshold. arduino is used to control the whole circuit. whenever there is alcohol concentration of 1000ppm in the area, the output signal is sent to arduino and after processing the signal it sends the signal to the indicator leds. the circuit works on 12 v dc supply which is given to the arduino microcontroller from there the voltage is given to the other device like mq-3 gas sensor module lcd and operating voltage to the leds

Patent filing number: 201811005531
Date of filing: 14-feb-18
Title: A method for surface modification of low carbon steel
Status: Filed
Inventors Name: Akshay Pathania
Department: Faculty of engineering & technology
Specialized area of Patent Material science
Brief description (100 words): The invention relates to a method for surface modification of low carbon steel through tungsten inert gas welding and uses thereof. in this present invention, ewac 1001 eb cladding have been developed on mild steel substrate through gas tungsten arc welding. the characterization of clads has been carried out by secondary electron microscope (fe-sem) equipped with energy dispersive detector for chemical composition analysis, x-ray diffraction (xrd) and vickerss microhardness. the tribological behavior of developed clads has been evaluated by pin on disc tribo tester at room temperature. the developed clads shows good metallurgical bonding with substrate by partial dilution of material from clad to substrate and vice versa. the clads were free from visible solidification cracks and porosity. the average micro hardness of ewac 1001 eb was found 210hv.

Patent filing number: 201811010038
Date of filing: 19-mar-18
Title: Automatic rain water harvesting tank for domestic applications
Status: Filed
Inventors Name: Adit Rana, Ranchan Chauhan, Raj Kumar, Nitin Kumar, Bhaskar Goel
Department: Faculty of engineering & technology
Specialized area of Patent Water resource management

Brief description (100 words): As we know rain water is the purest form of water and it is free from salinity and there is no other salt will present in it but there may be colloidal particles and sulfur may present in it therefor harvested water cant be used for drinking purpose directly however it requires special treatment to make it safe for drinking so using natural techniques and methods harvested water can be used for drinking purpose and other applications. also this tank is designed to open its gate only during the rainy weather as rain sensing unit is provided to maintain water quality level.

Patent filing number: 201811010040
Date of filing: 19-mar-18
Title: An indirect solar dryer system and uses thereof
Status: Filed
Inventors Name: A K Bhardwaj, Ranchan Chauhan, Raj Kumar, Adit Rana
Department: Faculty of engineering & technology
Specialized area of Patent Renewable energy applications
Brief description (100 words): A unique indirect type solar dryer is designed and developed to harvest the solar thermal energy for drying applications of aromatic herbs and medicinal herbs. the unique feature of this dryer is, it can dry the products even in the absence of sun light because a latent heat type thermal storage system of paraffin wax provides the continuous working even during night times.

Patent filing number: 306242
Date of filing: 6-may-18
Title: Power exo-skeleton
Status: Filed
Inventors Name: Robin Thakur, Nitin Rana, Anil Kumar, Varun Bhola, Nabin kumar Sheet, Vikrant, Emini Bezawada, Sunil Kumar Singh
Department: Faculty of engineering & technology
Specialized area of Patent Mechanical engineering
Brief description (100 words): A powered exoskeleton (also known as power armor, powered armor, powered suit, exoframe, hardsuit or exosuit) is a wearable mobile machine that is powered by a system of electric motors, pneumatics, levers, hydraulics, or a combination of technologies that allow for limb movement with increased strength and endurance.

Patent filing number:	305215
Date of filing:	11-may-18
Title:	Screw turbine efficiency measuring instrument
Status:	Filed
Inventors Name:	Kamal Kashyap, Robin Thakur, Anil Kumar, Nitin Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	To resolve the different problems like the effect of large scale hydro turbines on ecosystem (population of migrating fishes decreased by 30%) faced by micro hydroelectric projects by this setup. to enhance the usage of eco-friendly turbines so that hydropower does not affect eco system any more.

Patent filing number:	305217
Date of filing:	11-may-18
Title:	Air-impingement jets
Status:	Filed
Inventors Name:	Nitin Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Thermal engineering
Brief description (100 words):	This patent is so designed to enhance the thermal as well as hydraulic performance of solar air collector system by using solar energy.

Patent filing number:	201811018235
Date of filing:	15-may-18
Title:	Structure for hydrodynamic and thermal performance of blockage arrangements roughened solar air passage
Status:	Filed
Inventors Name:	Anil Kumar, Robin Thakur, Amar Raj Singh Suri, Raj Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar energy
Brief description (100 words):	This invention relates to "better heat transfer equipments. this invention related to solar air heating passage is a solar thermal technology in which the energy from the sun is captured by an absorbing media and used to heat air. to find out the best blockage roughness solar air collector geometry in term of thermal hydraulic performance parameter. the use of blockages on the heated surface breaks the viscous sub-layer and enhances the heat transfer. various

	experimental investigations by various investigators to examine the characteristics of heat transfer and pressure drop of blockage roughened air passage have been carried out to bring out optimum roughness geometry.

Patent filing number:	306243
Date of filing:	22-may-18
Title:	Hydraulic load carrier
Status:	Filed
Inventors Name:	Ankit Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Construction field & domestic use
Brief description (100 words):	Our main intension in this project is that help those peoples by invent something new which will help in their daily work life by reduce the fatigue and harm of heavy loads by using hydraulic mechanism. the main cause of the entire above problem is heavy load lifting during work, which ultimately reduce the efficiency of labour and also cause reduction in productivity. to overcome the limitations of existing models we are designing a new device, named “economical design of hydraulic load carrier to prevent ergonomic of worker”. to avoid that problem we are designing a device which in turn:reduce the labour fatigue;avoid many accidents which cause due to fatigue of operator;? rapid work rate, ultimate increase productivity; reduce manpower and labour cost; reduce various health issues which cause during work.

Patent filing number:	306244
Date of filing:	23-may-18
Title:	Fin-solar energy-storage
Status:	Filed
Inventors Name:	Anil Kumar, Amar Raj Singh Suri, Robin Thakur, Chaduvula Narasimha Reddy, Boddu Satya Rama Sai Vithal
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar energy
Brief description (100 words):	Augmentation the fluid flow and heat transfer rate in the fin solar thermal energy storage system. enhance the quality of the solar thermal energy storage equipments with minimal cost.

Patent filing number:	306245
Date of filing:	23-may-18
Title:	Round tube heat-exchanger
Status:	Filed
Inventors Name:	Anil Kumar, Robin Thakur, Ravi Dutt, Amar Raj Singh Suri
Department:	Faculty of engineering & technology
Specialized area of Patent	Heat exchangers
Brief description (100 words):	Energy is a primary need to live our daily life at expenses of some valuable things such as environment degradation by using fossil fuels. energy is essentially important for our daily works; therefore, it is imperative that energy is utilized effectively and efficiently. heat exchangers plays a significant function in various fields like electric power, metallurgy, chemical engineering, refrigeration and air-conditioning and such heat exchangers are broadly employed in these areas. heat transfer coefficient to the streaming fluid need to the enhanced to make the heat exchanger round tube compact and efficient method for enhancement of convective thermal behaviour involves the formation of turbulence promoters.

Patent filing number:	306246
Date of filing:	5-jun-18
Title:	Modified stator and rotor design of three phase synchronous motor
Status:	Filed
Inventors Name:	Raj Kumar Saini, Dr.Neeraj Gandotra, Namita Saini, Shashank Thapa
Department:	Faculty of engineering & technology
Specialized area of Patent	Synchrnous machine
Brief description (100 words):	The present creation discloses the stator and rotor design of three phase synchronous motor. generally to make synchronous motor as a self-starting motor, it is started as a squirrel cage induction motor first by inserting single copper bars in the faces of the rotor of synchronous motor. generally the same technology is applied for low as well as for high rating of synchronous motors. this technology of self-starting of synchronous motors by single copper bars are suitable for low and medium types of synchronous motors, but for larger rating of synchronous motor, where high starting torque is required, a double cage rotor will be much suitable to reduce the high starting current as well as to increase the initial starting torque.

Patent filing number:	201811020549
Date of filing:	5-jun-18
Title:	Hidden hydraulic runway
Status:	Filed
Inventors Name:	Mohit Kapoor
Department:	Faculty of engineering & technology
Specialized area of Patent	Defence related
Brief description (100 words):	This invention relates to a hidden hydraulic runway and methods thereof. the present invention is all about hidden runway under the surface. there has been always a problem of destroying the runways during wars and by doing this half of the problem is solved. as a country citizen we thought of serving our country. to overcome these situations, we thought of making such type of model which can be beneficial for saving runways during wars because air force is one the key to hold wars. so as to provide safety to air force and safety to fighter jets we thought of making such type of model. and we hope that this type of project should be made in reality.

Patent filing number:	306410
Date of filing:	7-jun-18
Title:	Automatic floor cleaner
Status:	Filed
Inventors Name:	Automatic Floor Cleaner
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	It is simple in design in which it will reduce the manual effort with less operating time. also it will perform two functions simultaneously that is cleaning and polishing can be done at same time. it consumes less cleaning liquid and easily fabricated.

Patent filing number:	201811022929
Date of filing:	19-jun-18
Title:	Smoke and temperature sensor system for control exhaust fan and kitchen chimney
Status:	Filed
Inventors Name:	Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	Now a days the exhaust fans used in our kitchens are ac operated and

as they are a single button operated they consumes a lot of energy and due to this a big amount of energy is wasted, similarly apart from the exhaust fans the another thing we use in our kitchens is kitchen chimneys so in this invention i have controlled the exhaust and kitchen chimneys using arduino uno r3 so that energy can be saved and the system is automatic to user do not have to power on the supply for the exhaust and chimney it automatically start working once it will get the desired amount of data through the sensors. sensor used in this invention are temperature sensor and smoke sensor. when a sensor sense the value of temperature or smoke it will trigger the motor to drive and when it will sense that the temp and smoke is under control it will trigger off the motor of fans of chimney and exhaust immediately.

Patent filing number: 201811022930
Date of filing: 19-jun-18
Title: A system of power supply for computer desktop cpu with backup
Status: Filed
Inventors Name: Brij Bhushan
Department: Faculty of engineering & technology
Specialized area of Patent Electronics
Brief description (100 words): A power supply unit converts ac mains to low-voltage regulated dc power supply for the internal components of the computer. generally, pcs all over the world use smps in which some are manually operated for selecting the input voltage whereas others are fully automatic to the mains voltage the output of smps which goes to the motherboard of the personal computer are of +12v, +5v, +3.3v, -5v. but these personal computers do not have any backup so once the ac mains are off your pc system is also off to overcome this problem we use ups and inverters which are so costly so i have tried to overcome this with this circuit which will produce the required amount of the power supply from the ac mains and when there is no ac supply the battery connected in the circuit will power up the pc as a backup power supply so that important work which is being going on will not be interrupted

Patent filing number: 201811022928
Date of filing: 19-jun-18
Title: Automatic ac mains cut off system on lpg gas leakage using arduino

	with sms alert to the users
Status:	Filed
Inventors Name:	Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	Here is a gas leakage detector circuit that detects the leakage of lpg gas and alerts the user through audio indications. the circuit operates off a 12vdc. the gas leakage circuit uses the gas sensor module from. its output goes high when the gas level reaches or exceeds certain point. a preset in the module is used to set the threshold. arduino is used to control the whole circuit. whenever there is lpg concentration of 1000ppm in the area, the output pin of the sensor module goes high and it sends the signal to arduino and after processing the signal it sends the signal to the ssr (solid state relay) which then cuts the ac mains and addition to this this time we have added a gsm module to this system which can inform the consumer on its mobile phone using this gsm module.

Patent filing number:	307954
Date of filing:	23-jul-18
Title:	Multipurpose allen key
Status:	Filed
Inventors Name:	Narasimha Reddy
Department:	Faculty of engineering & technology
Specialized area of Patent	Machine tools
Brief description (100 words):	To make a universal allen key, i.e. all dimensional allen keys in a single unit as a single tool. to make an allen key set compact.-universal allen keys are those in which all the dimensional allen keys are built in a single tool. in this we dont need to keep all the different allen keys separately. the universal allen key is a tool in which all dimensioned allen keys are made in itself. and we can use the allen key one by one by changing.

Patent filing number:	201811028255
Date of filing:	27-jul-18
Title:	Sealing system of banjo beam during air leak operation
Status:	Filed
Inventors Name:	Abhilash Pathania

Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile engineering
Brief description (100 words):	The testing of leakage is required in every oil or liquid containing component of the machine or in automobiles. the compressed air is supplied to certain pressure and is stored in that container for some time. the pressure drop is measured through the pressure gauge. earlier the compressed air line was linked through the threaded plugs. these plugs consumes about 20 seconds for fixing and removal. hence a quick seal adaptor was suggested to reduce the cycle time of the process. with the help of quick seal adaptor the fixing and removal time is reduced from 20 seconds to 5 seconds. the performance and the production of the industries will increase by using this device.

Patent filing number:	201811028253
Date of filing:	27-jul-18
Title:	Universal allen key
Status:	Filed
Inventors Name:	Narasimha Reddy
Department:	Faculty of engineering & technology
Specialized area of Patent	Machine tools
Brief description (100 words):	in our day today life we require many mechanical tools to perform various tasks but unfortunately its not possible for us to carry all the tools at all the time, especially when we are travelling. hence we always prefer to have a multitasking tool, which can solve various purpose for us and we can carry it easily as it would not occupy much space, especially when we are travelling through two wheelers it becomes necessary for us to use compact tools so as to save some storage space, hence keeping this requirement of modern life in mind this universal allen key have been designed, its very compact and this single tool can fit to various sizes within some specified limits.

Patent filing number:	307955
Date of filing:	30-jul-18
Title:	Air-impingement jets
Status:	Filed
Inventors Name:	Amar Raj Singh Suri
Department:	Faculty of engineering & technology
Specialized area of Patent	Thermal engineering

Brief description (100 words):	The suggested design uses nanofluid/water flow as a heat transfer carrier and will enhance the heat transfer rate in impingement jet heat exchanger which is useful in many industrial processes including petrochemical, paper and pulp, cement etc. this design is very helpful for improving the quality of impingement jet heat exchanger industrial equipments.this helps increasing the heat transfer rate in the heat exchanger tubes. impingement liquid jet will provide high local heat transfer between the impinged liquid and a surface.

Patent filing number:	201811035171
Date of filing:	18-sep-18
Title:	Impingement jets solar air heating system and methods thereof
Status:	Filed
Inventors Name:	Anil Kumar, Sunil Kumar, Robin Thakur, Nitin Kumar, Amar Raj Singh Suri, Raj Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar energy
Brief description (100 words):	Fluid heating and cooling plays an important role in many industries includes production processes, power generation, electronics and transportation etc. impingement liquid jet is an established technique to provide high local convective heat transfer between the impinged liquid and a surface. the impingement jets are one of the widely employed better techniques to increase the heat transfer rate. some particular or several impinging fluid jet incidents usually on a face is a significant heat transfer enhancement method employed in a broad level of manufacturing functions. impinging fluid jets are employed to dry, cool and heat planes in several manufacturing functions like textiles, drying of paper and tempering of glasses etc.

Patent filing number:	201811038014
Date of filing:	8-oct-18
Title:	Absorber plate of solar air heater triangular duct and uses thereof
Status:	Filed
Inventors Name:	Anil Kumar, Deshmukh Kiran Prakash Rao, Robin Thakur, Amar Raj Singh Suri, Sunil Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar air heating

Brief description (100 words): The solar air heater is one of the simplest and cheapest devices use to collect solar energy. a collector, glazing material and an absorber are used for heating air. the absorber of the solar heater is made up of good thermally conductive material such as aluminum sheet or steel sheet etc. the air passes through the collector and air collects heat from the absorber plate of solar air heater. in most of the solar air heaters, a heating process is same. the working principal of solar air heater is the sun rays from the sun are absorbed and converted into the heat of collators which are covered with glass or plastic. this solar radiations absorbed by absorber not transfer to air efficiently due to poor heat transfer coefficient between air and absorber plate. therefore a different design is needed to effectively transfer of heat from absorber plate and air.

Patent filing number: 201811038015
Date of filing: 8-oct-18
Title: Anti-drug band
Status: Filed
Inventors Name: Abhilash Pathania, Adit Rana, Raj Kumar, Ranjeet Thakur
Department: Faculty of engineering & technology
Specialized area of Patent Health & fitness accessories
Brief description (100 words): The main focus of this band is on solving the problem of increasing -drug activities. it is also made to fix the health issues. by this device we can observe the early symptoms of heart attack and other diseases. if any changes occurs in the body of that person the sensors will detect so we can take suitable actions to save the life of that person. it can be used to detect the anti- drug activities as well as to track your daily activities. here in prototype a basic working model of this system is designed using various sensors and controllers

Patent filing number: 312787-001
Date of filing: 28-nov-18
Title: Green stove
Status: Filed
Inventors Name: Sorabh Aggarwal
Department: Faculty of engineering & technology
Specialized area of Patent Energy efficient machines
Brief description (100 words): The design is regarding the normal stove that is used in villages, the mentioned design can produce a lot of energy in the same amount of

fuel as consumed by traditional stoves.

Patent filing number:	201811045727
Date of filing:	4-dec-18
Title:	A method for enhancement in transmission of light by dry machining of pmma discs
Status:	Filed
Inventors Name:	Bhaskar Goel, Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Manufacturing of optical lenses
Brief description (100 words):	Average transmission was increased from 85.8% to 89% if coolant is not used for machining of polymethyl methacrylate discs. transmission should be maximum possible as pmma is used for making high quality lenses. if pmma discs are machined without coolant, transmission of light increases by 3.2 % which is quite substantial keeping in view of usage of pmma for making lenses.

Patent filing number:	312788
Date of filing:	5-dec-18
Title:	Thermo-photovoltaic system
Status:	Filed
Inventors Name:	Kamal Kashyap, Robin Thakur, Anil Kumar, Ashwani Sharma, Sashank Thapa
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	To resolve the electricity problem faced by the people living in remote areas as these people are not connected to electricity grid. mini hydro projects can be installed after the experimentation will help people living in distant places to live better life. to provide green electricity to people living in rural areas without disturbing the ecosystem.

Patent filing number:	201811045881
Date of filing:	5-dec-18
Title:	Ionised filtered compressed air type vinegar generating apparatus
Status:	Filed
Inventors Name:	Somesh Sharma, Adit Rana, Raj Kumar, Abhilash Pathania
Department:	Faculty of engineering & technology

Specialized area of Patent	Food technology
Brief description (100 words):	Ionised filtered compressed air type vinegar generator was developed for the production of different vinegars

Patent filing number:	201811048475
Date of filing:	20-dec-18
Title:	a system for portable, hygienic and efficient raw milk dispensing
Status:	Filed
Inventors Name:	Meenakshi Nayyer, Brij Bhushan, Amit Nayyer
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	the problem of unhygienic, approximate quantity and time consumed are addressed in the proposed invention. the system proposed to used arduino based programmable flow meter to accurately measure the quantity of the milk. the milk man need to enter amount in rupees, for which milk need to be deliver. the system is equipped with small battery operated motor, which lift the milk out of the container through milk flow meter. it stops the milk outlet when the required quantity is dispensed. the system is designed to be fit in existing containers and distribute milk without putting hands in the container. this system works more similar to the systems deployed at petrol pumps, but it is portable, cost efficient and also supports manual distribution of milk.

Patent filing number:	201811048474
Date of filing:	20-dec-18
Title:	A wireless vibration detection unit and uses thereof
Status:	Filed
Inventors Name:	Adit Rana, Raj Kumar, Saikat Ghosh, Arshdeep Singh, Abhishek Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Sensor development
Brief description (100 words):	This project is related to the development of the wireless type vibration detector for typically low frequency to very high frequency in a range of 3 hz to 4000 hz

Patent filing number:	313480
Date of filing:	27-dec-18

Title:	Solar-nanomaterial energy- storage
Status:	Filed
Inventors Name:	Anil Kumar, Robin Thakur, Neeraj Chandel, Sunil Kumar, Rajesh Kumar, Pankaj Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar energy storage
Brief description (100 words):	During last three decades, semiconductor based photocatalytic processes have attracted great interest in resolving water pollution problem and fulfill clean energy demand. it is regarded as an important approach for decontamination of water as it can destroy wide range of both abiotic and biotic pollutants present in wastewater. during semiconductor based photocatalysis, light with photonic energy greater than the band gap of a semiconductor, excites an electron from the filled valence band (vb) to the empty conduction band (cb). this excitation of electrons from vb to cb causes the formation of excited electron (ecb) and hole (h+vb) pair.

Patent filing number:	201811049886
Date of filing:	30-dec-18
Title:	A method for slow capsule desiccant profile for re-entry and trajectory tracing
Status:	Filed
Inventors Name:	Adit Rana, Raj Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Aerodynamics
Brief description (100 words):	In existing profile emergency backup parachutes (four flap, cloverleaf) are termed as best suited for deployment. also in military, aerospace and skydiving etc. low altitude deployment is the biggest problem. so to simplify this problem new profile have been designed to man-oeuvre and solve the deployment problem

Patent filing number:	201811050123
Date of filing:	31-dec-18
Title:	method of manufacturing of helmet and uses thereof
Status:	Filed
Inventors Name:	Gaurav Gupta , Shaurya Bahuguna, Nimish Kappal, Manik Sharma
Department:	Faculty of engineering & technology
Specialized area of Patent	Computer science
Brief description (100 words):	In todays life most of the road accidents happen due to drinking and

	driving and riding two wheeler vehicles without helmet. most of the countries including india are forcing the two wheeler riders to wear helmets, but rules are being violated by many people. in present day scenario we encounter numerous cases of death due to two wheeler road accidents. the main reason being severe head injuries. despite of the fact that helmets are available everywhere, people are not wearing them. thus the objective of this project is to make sure people wear helmets when riding bikes and to make sure that people are safe while riding.
Patent filing number:	201811050124
Date of filing:	31-dec-18
Title:	A method for optimization of cutting force measuring machine with improved topology
Status:	Filed
Inventors Name:	Sashank Thapa, Anuj Kumar Chauhan, Shafaqat Iqbal, Pradipta Kumar Baral, A. Deva Divyan, Navendu Nanda, Aditya Sharma
Department:	Faculty of engineering & technology
Specialized area of Patent	Design
Brief description (100 words):	The improved topology is used to make the structure stiffer and reduce the deflections so as to improve the quality of results obtained as compared with a machine for calculate cutting forces and methods thereof with patent number 201711020456.
Patent filing number:	201911001085
Date of filing:	9-jan-19
Title:	Smart engine immobilize control system against unlicensed and without helmet riders of two wheeler
Status:	Filed
Inventors Name:	Adit Rana, Raj Kumar, Saikat Ghosh, Arshdeep Singh, Abhisek Aggarwal, Raj Kumar Sharma, Prashant Katuwal, Chanra Shekhar Aazad
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile assistance
Brief description (100 words):	Smart engine immobilize control system against unlicensed and without helmet riders of two wheeler. this patent discloses the prevention against following: not wearing helmets, rash driving, not wearing proper safety gears, drink and drive etc. also you can restrict the maximum allowable speed if you have entered 60 kmph as max

	allowable speed then developed application will set this. other feature of this application is it can enable ride only for licences persons

Patent filing number:	201911001086
Date of filing:	9-jan-19
Title:	A method for achieving mirror finish on mono- crystalline germanium disc
Status:	Filed
Inventors Name:	Bhaskar Goel, Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Manufacturing of lenses
Brief description (100 words):	Mirror finish is obtained when germanium workpiece is machined with optimized parameters i.e. top rake angle (-25 degree, tool overhang 10 mm, spindle speed 2000 rpm, tool feed rate 1µm/rev, depth of cut 5 µm which is very useful as germanium is used for making moulds for optical lenses and other strategic applications. surface finish of approx. 10 nanometer is achieved with the help of diamond turning.

Patent filing number:	201911001087
Date of filing:	9-jan-19
Title:	A sytem and process for mitigation of chromatic dispersion
Status:	Filed
Inventors Name:	Ashwani Kumar, Dr. Inder Singh, Ms. Shalini Sharma Dr. Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Optical fiber communication
Brief description (100 words):	Every year, the rate of data transfer goes on increasing due to the more and distinct technologies. the usage of new system advancements and increase in the transmission speed of the data has given a chance to make new and better services for users like video calling, cloud computing, etc. in the optical fiber communication system, the information is transmitted from one location to another location in the form of optical pulses using optical fiber as a channel. along with different minor losses, dispersion is the most significant signal deteriorating factor. so, work should be done to avoid the degradation of the system and to improve the quality of signal transmission with little dispersion or no dispersion. hence, dispersion

compensation techniques are used.

Patent filing number:	201911001702
Date of filing:	15-jan-19
Title:	Universal spanner apparatus and uses thereof
Status:	Filed
Inventors Name:	Sorabh aggarwal, narasimha Reddy, sundar
Department:	Faculty of engineering & technology
Specialized area of Patent	Industrial, household
Brief description (100 words):	This instrument useful for loose/tighten various sizes and shapes of nuts and bolts, irrespective of their sizes and shapes

Patent filing number:	314267
Date of filing:	27-jan-19
Title:	Vortex-pool turbine-equipment
Status:	Filed
Inventors Name:	Kamal Kashyap, Robin Thakur, Anil Kumar, Ashwani Sharma, Sashank Thapa
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	This turbine is invented to resolve the electricity problem faced by the people living in remote areas as these people are not connected to electricity grid. mini hydro projects can be installed after the experimentation will help people living in distant places to live better life. to provide green electricity to people living in rural areas without disturbing the ecosystem.

Patent filing number:	315053-001
Date of filing:	2-feb-19
Title:	Nanofluid flow measuring kit
Status:	Filed
Inventors Name:	Yashwant Singh, Anil Kumar, Robin Thakur, Sunil Kumar, Sushil Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Nanofluids
Brief description (100 words):	Augmentation the fluid flow and heat transfer rate in the heat exchangers. measure the heat transfer rate in heat exchangers.

measure fluid flow behavior in the nanofluid flow heat exchangers. measure overall performance of ribbed surface heat exchangers.

Patent filing number:	201911005096
Date of filing:	8-feb-19
Title:	A composition and method of manufacturing of clay bricks using wood saw dust ash
Status:	Filed
Inventors Name:	Prakritee Rana, P.L Goel
Department:	Faculty of engineering & technology
Specialized area of Patent	Building material
Brief description (100 words):	optimum utilization potential of wood saw dust ash for manufacturing of clay bricks.wood saw dust production is a bye-product of timber cutting in timber industrial units. the wood ash admixture in line with its pozzolanic nature was able to attain denser product with higher compressive strength, lower water absorption rate, higher softening coefficient & lower saturation. therefore the patent had been filed to use this waste wood saw dust ash in manufacturing of bricks for building works. the use of this ash had been optimized up to 20%. it will help in saving extensive loss of top fertile soil and cost effective too. further it will cover up the concept of reduce, recycle & reuse of waste to save environmental degradation.

Patent filing number:	201911005560
Date of filing:	13-feb-19
Title:	Heat exchanger nanofluids and methods thereof
Status:	Filed
Inventors Name:	Sunil Kumar, Anil Kumar, Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	heat exchanger nanofluid
Brief description (100 words):	Fluids are frequently used as heat carriers in heat transfer equipment. examples of important uses of heat transfer fluids include vehicular and avionics cooling systems in the transportation industry, hydraulic heating and cooling systems in buildings, industrial process heating as well as cooling systems in petrochemical, textile,

	pulp and paper, chemical, food and other processing plants. in all of these applications, the thermal conductivity of heat transfer fluids plays a vital role in the development of energy-efficient heat transfer equipment.
Patent filing number:	201911005559
Date of filing:	13-feb-19
Title:	Method and system for estimated efficiencies in various baffle surfaces solar air collector
Status:	Filed
Inventors Name:	Anil Kumar, Robin Thakur, Sunil Kumar, Kamal Kashyap
Department:	Faculty of engineering & technology
Specialized area of Patent	Exergy analysis for solar system
Brief description (100 words):	Solar air collector can be made-up by inexpensive along with smaller amounts of materials and are simpler to usage than a solar water heater. solar air collectors are usually considered to be suitable for applications that include space heating, crop drying, and timber seasoning. a solar air collector occupies an important place among solar thermal systems because of the minimal material usage and price. the purpose of the present investigation is to numerically determine the thermal, effective and exergetic efficiencies of different baffle air channel besides optimizing the baffle roughness shapes.
Patent filing number:	316063
Date of filing:	26-mar-19
Title:	Integrated-trough-photovoltaic-collectors water-heater
Status:	Filed
Inventors Name:	Mr. Shubham Verma, Dr. Anil Kumar, Mr. Sunil Kumar, Dr. Robin Thakur, Dr. Amar Raj Singh Suri
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar energy
Brief description (100 words):	The current design is unique in a manner that no such type of similar integrated water heater design has previously been reported by researchers. this proposed integrated-trough/photovoltaic-collectors water heater will be significantly rising the efficiency of water heating system. this proposed design will be very usable for domestic (flats and apartments) and commercial (hotels, hostels, hospitals etc) purposes because highly efficient technology (i.e. rise

	the water temperature very quickly with combined technology thermal/photovoltaic). efficient design for provide hot water throughout the year and reduced energy bills.

Patent filing number:	316064
Date of filing:	26-mar-19
Title:	Plant material extraction solar equipment
Status:	Filed
Inventors Name:	Dr. Anil Kumar, Dr.Mamta Sharma, Dr. Rajesh Kumar, Dr. Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Plant extraction solar system
Brief description (100 words):	To develop a new efficient and harmless extraction technology for phytochemicals and oil content from plant materials. the present invention uses solar radiations as a source of energy for steaming (i.e. heated oil through solar parabolic trough collector with stones packed beds thermal energy storage system). the invention provides a well-organized oil packed beds storage for solar energy which adds to the efficiency of model. carbon emission reduction has been proposed.

Patent filing number:	316068
Date of filing:	26-mar-19
Title:	Solar energy storage system
Status:	Filed
Inventors Name:	Sunil Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar-thermal energy storage system (design patent)
Brief description (100 words):	The current design is a solar-thermal-energy conical-storage-system which is unique in a manner that no such type of similar solar-thermal-energy conical-storage-system design has previously been reported by researchers. the present model is based on using renewable source of energy (solar). solar energy is free/clean energy, so this design will be helpful for maximum utilization of solar energy with the help of solar storage system. it will reduce the carbon emission, hence reduce air pollution and also helpful in cost cutting.

Patent filing number:	316070
Date of filing:	26-mar-19
Title:	Solar water heater with storage
Status:	Filed
Inventors Name:	Dr. Anil Kumar, Dr. Robin Thakur, Mr. Sunil Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar water heater
Brief description (100 words):	The greatest advantages of solar energy as compared with other forms of energy is that it is clean and can be supplied without any environment pollution. parabolic dish solar concentrator high conversion efficiency and operating temperature around 750 degree celsius. so, this high temperature range, proposed design will be helpful for rise the efficiency water heating system in various applications. proposed parabolic dish solar concentrator water heater with store the heated water with connect vessel has good potential in various applications.

Patent filing number:	316069
Date of filing:	26-mar-19
Title:	Solar equipment to extract substances from plants
Status:	Filed
Inventors Name:	Dr. Anil Kumar, Dr.Mamta Sharma, Dr. Rajesh Kumar, Dr. Robin Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Plant extraction equipment
Brief description (100 words):	To develop a new effective, cheap, harmless extraction technology for secondary metabolites and oil content from plant materials using solar energy (i.e. two frame flat plate solar air collector with packed bed thermal energy storage system). the present invention proposing vapour phase extraction through steam distillation to obtain maximum quantity of essential oils/compounds from plant material in comparison to traditional solvent based methods e.g. soxhlet extraction, microwave assisted extraction, etc.

Patent filing number:	201911012293
Date of filing:	28-mar-19
Title:	Weight lifting equipment
Status:	Filed
Inventors Name:	Robin Thakur, Nitin Rana, Anil Kumar, Sunil Kumar, Varun Bhola,

	Nabin Kumar Sheet, Vikrant, Emini Bezawada, Sunil Singh
Department:	Faculty of engineering & technology
Specialized area of Patent	Mechanical engineering
Brief description (100 words):	Simple in design,cost efficient,do not use any sensor. using arm motion to control position movement. our invention is cost efficient. the prior art is very costly. we used simple design and make it user friendly.

Patent filing number:	316197
Date of filing:	29-mar-19
Title:	Multiple lug spanner
Status:	Filed
Inventors Name:	Boddu Satya Rama Sai Vithal
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile
Brief description (100 words):	In stock car racing, the automobile may not be significantly modified from the off the floor condition which is sold in show rooms. so unlike the indy car where a single nut can be used for attachment, the wheels must be attached with all lug nuts (sometimes 4 or more typically, 5). accordingly, in racing stock cars, the removal and replacement of the wheels become a key rate-determinative factor in completion of a pit stop. one way pit crews attempt to reduce the turn around time is to cement the lug nuts to the replacement wheel to eliminate handling the lug nuts during replacement. in addition, ¼ to ½ of the threads are ground off the lead end of the studs so that the cemented lugs can seat on the stud and not simply be knocked loose as the replacement wheel is mounted.

Patent filing number:	316198
Date of filing:	29-mar-19
Title:	Flexi pvc cutter
Status:	Filed
Inventors Name:	Narasimha Reddy,sorabh aggarwal,
Department:	Faculty of engineering & technology
Specialized area of Patent	Industrial, house hold, agricultural
Brief description (100 words):	This tool can be useful to cut pvc pipes ranging from 25 mm to 300 mm, by providing straight cut, without burr, without extra manpower

and extra equipment

Patent filing number:	201911012735
Date of filing:	29-mar-19
Title:	Anti-theft & vehicle identification system and methods thereof
Status:	Filed
Inventors Name:	Harshit Bhatt, Wasi Rasooli, Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	A new model for anti-theft system of vehicles is proposed that will make the existing system more secure and cheap. it is based on the microcontroller and rf module. working of the system is to provide information (engine number, chassis number and number plate) of the vehicle. the uniqueness of these numbers will help in identification of the vehicle and thus keeping that vehicle secure. this model has two parts: transmitter and receiver. the transmitter side contains the above mentioned information stored in it and the receiver side receives this information to either display it on the 20×4lcd or store this information in the sd card/server. if we talk about the range of the rf module, when the two devices (transmitter and the receiver will not be in range it will cause the ignition of the vehicle to cut off and hence the vehicle wont move any further.

Patent filing number:	201911012361
Date of filing:	29-mar-19
Title:	Infra-red sensor based platform light system
Status:	Filed
Inventors Name:	Vibhav Dhadwal, Savita, Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	This invention resolve the manual application difficulties of the stage lighting system. this system of lighting not only simplify the control of lights which are focusing on stage but also removes the chances of errors in lighting a particular space on stage. this is also smart enough to act accordingly to the performance at the stage using the infrared modules. these modules are used to send an input signal to microcontroller about what is going on stage. according to which microcontroller senses the particular module of a particular part of stage and sends an output signal to lights to glow the particular

region of stage.

Patent filing number: 201911012510
Date of filing: 29-mar-19
Title: Composition of fiber reinforced concrete mix and methods thereof
Status: Filed
Inventors Name: Dr. M.S. Thakur, Er. Veena Kashayap, Er. Deepak
Department: Faculty of engineering & technology
Specialized area of Patent Rcc
Brief description (100 words):

there are many types of fibers available in the market however steel fibers are commonly used in frc. the steel and bamboo fibers are used in combination, this would save the environmental ecology in addition to gain in compressive strength in fiber reinforced concrete. investigations for the compressive strength of composite fiber at different percentages of fiber in combination of steel and bamboo have been carried out. it has been found that the steel-bamboo 1.00 % fiber in the ratio of 25% steel & 75% bamboo fiber produce higher strength than the 100 % steel fibers in the cement concrete and the increase in the compressive strength is 9.96 % as compared to control samples (0% fiber content) . the massive use of the bamboo fibers in partial replacement of steel fibers will help save the environment pollution caused by the steel fibers processing and equally the use of bamboo fibers in combination with steel fibers will help in gaining the compressive strength of concrete.

Patent filing number: 201911012512
Date of filing: 29-mar-19
Title: Composition of waste paper sludge ash as supplementary material for cement and methods thereof
Status: Filed
Inventors Name: Er. Vikas Mehta, Dr. M.S. Thakur
Department: Faculty of engineering & technology
Specialized area of Patent Construction
Brief description (100 words): in this research the uncontrolled combustion process is used to obtain waste paper sludge ash (wpsa). an attempt is made to investigate the strength parameter of concrete (compressive and splitting strength). for control concrete is method of mix design was adopted by considering it as a base, mix design for replacement

method has been done. four different replacement levels namely 5%, 10%, 15% and 20% were chosen for the study concerned with replacement method. large range of curing periods starting from 7 days and 28 days are considered in this paper. cubes (150×150×150mm) and cylinders (150×300mm) with varying ratios of wpsa are casted. total casted cubes and cylinders were 6 in numbers each having replacement levels of 5%, 10%, 15% and 20%. the tests performed to evaluate the results of wpsa are normal consistency, setting time, compressive strength, splitting strength and water absorption.

Patent filing number:	201911012416
Date of filing:	29-mar-19
Title:	A method of english bond brick masonry by a numbering technique and uses thereof
Status:	Filed
Inventors Name:	Dr. M.S. Thakur, Er. Vikas Mehta, Er. Veena Kashyap, Er. Priyanka
Department:	Faculty of engineering & technology
Specialized area of Patent	Building construction
Brief description (100 words):	Bonding of the brick is significantly important keeping in view the monolithic character of the structure. the difficulty has been observed in arranging the bricks in proper and perfect order in the construction of brick masonry with english bond. therefore a numbering technique has been developed to arrange the bricks in perfect placement order and the illustrations have been cited with english bond brick masonry. three templates tc, t1, and t2 have been generated. to start with first course, template tc is required at the corner of the two wall intersection; template t1 and template t2 are required in vertical and in horizontal direction of corner of brick masonry respectively. this numbering technique allows perfect placement of brick elements in english bond brick masonry.

Patent filing number:	201911012737
Date of filing:	29-mar-19
Title:	Process of thickness on the rubberized base isolator in rcc 8-story frames and uses thereof
Status:	Filed
Inventors Name:	Er. Bhupender Kumar, Dr. M.S. Thakur, Er. Vikas Mehta
Department:	Faculty of engineering & technology

Specialized area of Patent	Earthquake engineering
Brief description (100 words):	in the seismic design of base-isolated structures, the superstructure is decoupled from earthquake ground motion by introducing flexible interface between the foundation and the base of the structure. due to these isolation systems shift the fundamental time-period of the structure to a large value and dissipate the energy in damping, limiting the amount of force that can be transferred to the superstructure such that inter-story drift and floor accelerations are reduced drastically. in the range of 0.1 1.0 sec is the dominant time-period of typical earthquake accelerations and maximum acceleration usefully occurs in the range of 0.2 0.6 sec. therefore, when the vibration time-period of the structure is increased beyond these limits the matching of fundamental frequencies of base-isolated structures and the predominant frequency contents of earthquake is avoided thereby the preventing the near-resonance response, resulting in dramatic reduction in structural response.

Patent filing number:	201911012736
Date of filing:	29-mar-19
Title:	A system for fully automatic indirect solar dryer
Status:	Filed
Inventors Name:	Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	The developed technology would reduce the losses of crops during drying which may occur due to bad weather. further, the farmers can have better return of their produce vegetables, fruits of himalayan region will be targeted vegetables and fruits will be dried up with efficient & safe method. users will be able to dry any kind of vegetables or fruits as this system provides a manual setting for adjusting the temperature of the crop chamber which no other system till now provides this will help user to gain efficient and best outcomes when drying up crops using this system.all media will be dried up without any losses for sure.

Patent filing number:	317328-001
Date of filing:	29-apr-19
Title:	Easy elevator
Status:	Filed

Inventors Name:	Narasimha Reddy, kuldeep Chand Rojhe, abhilash pathania, Sorabh aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Agricultural, industrial, residential.
Brief description (100 words):	It will helpful for agricultural area mainly in himachal like hill area, to lift the hand tractors for certain defined height

Patent filing number:	317329-001
Date of filing:	29-apr-19
Title:	Fork lifter
Status:	Filed
Inventors Name:	Narasimha Reddy, Kuldeep Chand Rojhe, sorabh aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Agricultural, industrial , residential
Brief description (100 words):	This will useful to lift the hand tractors to a certain height in agricultural fields of hill area like himachal pradesh.

Patent filing number:	317417-001
Date of filing:	2-may-19
Title:	Fresnel lens solar water heater
Status:	Filed
Inventors Name:	Anil Kumar, Robin Thakur, Sunil Kumar
Department:	Faculty of engineering & technology
Specialized area of Patent	Solar water heater
Brief description (100 words):	Solar water heating is one of the most successful applications of solar thermal technologies. solar energy is one of the most promising types of renewable energy that has the potential to meet the energy demand of the entire planet. solar water heating, besides its domestic role, has a wide array of applications within the commercial sector (e.g., swimming pools, laundries, hotels, and restaurants) and the industrial sector (e.g., food and beverages, processing, and textile industries). around the world, water heating accounts for as much as 15%-25% of the total energy consumed in the domestic sector.

Patent filing number:	201911017412
Date of filing:	2-may-19
Title:	Method to analyse the effect of mass irregularity in rcc building of

	moderate height
Status:	Filed
Inventors Name:	Er. Veena Kashyap, Dr. M.S. Thkaur, Er. Deepak
Department:	Faculty of engineering & technology
Specialized area of Patent	Earthquake engineering
Brief description (100 words):	an average size five storey buildings loaded with mass irregularity in the adjoining storey ranging from 100 % to 400% has been taken up for accessing the response behavior of such buildings in terms of storey drift and frequency. an analysis has been carried out by using response spectrum method. four types of models in the range from 100% to 400% were generated. the mass irregularity in an adjoining storey ranged from 100% to 400% had been created. it has been found that the mass irregularity generated at different storeys, decreases drift response. the storey drift response for mass irregularity ranged from (+)55% to (-)30% in different storeys after generating the mass irregularity in the adjoining storey. the slope of the drift is positive till the variation in mass irregularity is 200% thereafter it decreases. the effect of the variation in the mass irregularity above 200% does affect the frequency of the higher order i.e 3 and onwards.

Patent filing number:	201911018048
Date of filing:	6-may-19
Title:	Method to analyse effect of the stiffness irregularity in 9-storey rcc buildings
Status:	Filed
Inventors Name:	Er. Neha Thakkur, Dr. M. S. Thakur
Department:	Faculty of engineering & technology
Specialized area of Patent	Earthquake engineering
Brief description (100 words):	The state of himachal pradesh (india) is prone to highly seismic waves and most of its areas are subjected to seismic zone iv and v. nine-storey rcc buildings have been analyzed with uniform and varying stiffness in etabs 2016 version software. 8 models including one irregular stiffness models analyzed. it was found that in independent buildings of regular stiffness, as the stiffness increases, the drift decreases however in case of building wherein the stiffness increased in vertical direction, drift also increased. the m4 model which has the stiffness of 31.64% on model m7 (highest stiffness i/l3=0.2518 mm where b, d= 600 mm and l=3500 mm) found most effective in drift, frequency and lateral force reductions in the above

	said buildings. in the range of sections 300-600 mm; section 450 mm is found most effective in seismic conditions.height-wise changes in stiffness and mass render the dynamic characteristics of these buildings different from the regular building.

Patent filing number:	201911018048
Date of filing:	6-may-19
Title:	an automatic gas stove lpg cut off system using arduino
Status:	Filed
Inventors Name:	Brij Bhushan, Dr. Nagesh Kumar, Ruchika Sharma
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	In proposed structure we have introduced a system which will work with the use of flex sensor. gas spillage from time to time happens when we fail to kill these above said switches or controllers and in light of the especially inflammable nature of lpg these issues can't be overlooked. in this system flex sensor will be related under the dish holder of a gas stove and this sensor will give a commitment to the arduino littler scale controller which will furthermore control the stream sensor which is authentically connected with the controller of the gas chamber. working of the structure is it will perhaps work when the cooking dish is determined to the most elevated purpose of the gas stove or by the day's end we can say that gas supply from barrel will be started only the cooking skillet is determined to the most astounding purpose of the gas stove therefore this system is capable to keep the bothersome gas spillage from any chamber or lpg accumulating contraption

Patent filing number:	318168
Date of filing:	28-may-19
Title:	Gas stove
Status:	Filed
Inventors Name:	Brij Bhushan
Department:	Faculty of engineering & technology
Specialized area of Patent	Electronics
Brief description (100 words):	Smart lpg gas stove protection of unwanted gas leakage from the stove during cooking

Patent filing number:	319035-001
Date of filing:	25-jun-19
Title:	Arm type sun tracking system
Status:	Filed
Inventors Name:	Narasimha Reddy, Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Residential, industrial
Brief description (100 words):	This will use to track the sun automatically from morning to evening in all directions, angular and radially, and regain its home position in the morning by sensors.

Patent filing number:	319034-001
Date of filing:	25-jun-19
Title:	Screw type sun tracking system
Status:	Filed
Inventors Name:	Narasimha Reddy, Sai vithal , Sorabh Aggarwal
Department:	Faculty of engineering & technology
Specialized area of Patent	Residential, industrial
Brief description (100 words):	This merging of old generation concept to new technology to track the sun in all directions automatically and continually.

Patent filing number:	201911026508
Date of filing:	2-jul-19
Title:	Sullage water treatment plant and the method of use thereof
Status:	Filed
Inventors Name:	Adit Rana, Dr Kamal Dev, Dr Raj Kumar, Abhilash Pathania, Nidhi Kapoor
Department:	Faculty of engineering & technology
Specialized area of Patent	Waste water management
Brief description (100 words):	The innovation is related to waste water treatment. particularly a method for recycling and auto cleansing of accumulated waste debris from the treatment plant. in this setup one heating tower is used to treat water and one cooling tower is used to maintain the temperature of potable water. and final gravity filtration process will remove micro impurities and then after filtration treated water is supplied to storage tank and mechanical pump will supply of stored water for various applications

Patent filing number:	201911026507
Date of filing:	2-jul-19
Title:	A method for preparing bituminous concrete mixes by using fly-ash and waste polyethylene.
Status:	Filed
Inventors Name:	Noorullah Yusufi, Er. Vikas Mehta, Dr. M.S. Thakur, Priyanka Panchal
Department:	Faculty of engineering & technology
Specialized area of Patent	Transportation
Brief description (100 words):	this research work demonstrates the possibilities of using fly ash and waste plastic as partial replacement of bitumen and stone dust. in this study, the type of mix bc is prepared with vg-30 grade bitumen used as the binder. the effect of the addition of waste polythene and fly ash in the bituminous mixes has been studied by varying concentrations of polythene (6% to 16% by weight of optimum bitumen content) and fly ash (50% by weight of filler). the addition of fly-ash and waste plastic tended to increase the strength and quality of bc mix. result of the paper is improvement in marshall stability by 24% also reduction in flow. in addition to this there is a cost reduction by 9%.

Patent filing number:	201911033831
Date of filing:	22-aug-19
Title:	A system for automobile cooling/ heating using air multiplier techniques
Status:	Filed
Inventors Name:	Adit Rana, Dr. Kamal Dev, Dr. Raj Kumar, Chander Mohan
Department:	Faculty of engineering & technology
Specialized area of Patent	Automobile assistance
Brief description (100 words):	This patent is focused to replace the conventional cooling fan unit from the radiator of ic engine and blower for the cabin cooling/heating by an air multiplier. as the traditional blade fan unit generates more vibrations as compare to the air multiplier unit so it will reduce the vibration level and also gives the low noise operation. therefore more precise and effective cooling can be achieved using the air multiplier cooling system with less power consumption

Patent filing number:	201811020548
Date of filing:	31-may-18

Title:	A system of car cabin suffocation remover and methods thereof
Status:	Filed
Inventors Name:	Nipun
Department:	Faculty of management sciences & liberal arts
Specialized area of Patent	Automobile/auto-electrical engineering
Brief description (100 words):	The aim is to save any child or dependent person locked in the car from dying due to suffocation. this system will provide air from the outside to someone who gets locked in the car & will work when there is a load of minimum 2 kgs. on the any of the seats and the engine is off. the sensor mounted on the engine and the load cell fitted beneath the seat will give output which switch on their respective relays and sends signal to the battery which gives power to a mounted small dc fan fitted in the front glass duct.

Patent filing number:	201611022602
Date of filing:	30-jun-16
Title:	Novel anti-leishmaniasis compound and method of production thereof
Status:	Filed
Inventors Name:	Dr. Afroze Alam
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmaceutical chemistry
Brief description (100 words):	The present invention disclose anti-leishmaniasis compounds which is cost effective and efficient. it provide an eclectic compilation of chalcones and flavones of compounds which are active against amastigotes for the treatment of leishmaniasis

Patent filing number:	201611040684
Date of filing:	29-nov-16
Title:	Novel anticancer compound from brugmansia suaveolens and method thereof
Status:	Filed
Inventors Name:	Neeraj Mahindroo, Sunil Kumar, Aditi Gupta, Reena Saini, K.L. Dhar
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Cancer biology
Brief description (100 words):	The present invention discloses a novel anticancer compound (compound suph036-022a) isolated from the dried leaves of brugmansia suaveolens. the bioactivity of the purified compound

was assessed by various test methods viz. mtt assay using human peripheral blood mononuclear cell culture, ros generation assay, mitochondrial potential assay and cell cycle analysis. the
compound shows high anticancer activity and is remarkably efficient in killing cancer cells under in vitro conditions but does not affect normal cells.

Patent filing number:	201611043705
Date of filing:	21-dec-16
Title:	An isolate from seed oil of pongamia pinnata with antiosteoporotic activity and method thereof
Status:	Filed
Inventors Name:	Md Afroze Alam, Aditya Shiven
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmacutical sciences
Brief description (100 words):	The present invention discloses an isolate from seed oil of pongamia pinnata with antiosteoporotic activity i.e. 4-nitrofuranone shows structural similarity to 17-estradiol (estrogen) - a very important compound with critical role in preventing osteoporosis when taken after menopause. the natural isolate can be easily formulated into suitable oral composition and provide an easy and natural way for the treatment of postmenopausal osteoporosis without any side-effects. previously known therapies which reduce the risk of osteoporosis possess several side effects such as causing ulcers in oesophagus, irritation in upper gi, irregular heartbeat etc. which are completely absent in case of present invention.

Patent filing number:	201811007045
Date of filing:	24-feb-18
Title:	Anti-dandruff hair styling composition and method of preparation thereof
Status:	Filed
Inventors Name:	Shalabh Bansal, Deepak Nand Kishore Kapoor, Navneet Kumar Upadhyay
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmaceutics
Brief description (100 words):	Anti-dandruff hair styling composition and their preparation method

Patent filing number:	201811008389
Date of filing:	7-mar-18
Title:	Develpoment and evaluation of sea buckthorn (hippophae rhamnoides l.) seed oil nanoemulsion gel for wound healing
Status:	Filed
Inventors Name:	Tanurajvir Kaur, Deepak N Kapoor
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Drug delivery
Brief description (100 words):	Sea buckthorn seed oil is reported to have significant wound healing activity. major drawback of treatment of wounds with conventional formulation or with pure sea buckthorn seed oil is lack of active molecule contact time with wound surface and its stability. nanoemulsion gel formulation improved wound healing activity of sbt seed oil by improving its adhesion and permeability into the skin as compared to liquid oil or its conventional emulsified formulation. liquid oil also presents with problem of topical application on wounds because of dripping, leaking, difficult dosing and poor absorption. similar problems of dripping and leakage is also observed with nanoemulsions as such. these issues and problems are overcome by developing nanoemulsion gel system of sea buckthorn seed oil in the current invention.

Patent filing number:	201811016144
Date of filing:	28-apr-18
Title:	Anti-leishmaniasis extract from ajuga bracteosa and method thereof
Status:	Filed
Inventors Name:	Swati Pundir, Neeraj Mahindroo, Raman Preet Singh, Poonam Negi
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmacognosy
Brief description (100 words):	Whole plant extract of ajuga bracteosa was reported to be active against leishmania tropica while it has not evaluated against leishmania donovani. therefore ajuga bracteosa was chosen for the evaluation of antileishmanial activity against leishmania donovani.

Patent filing number:	201811016145
Date of filing:	28-apr-18
Title:	Anti-leishmaniasis extract from root of asparagus officinalis and method thereof
Status:	Granted

Inventors Name:	Swati Pundir, Neeraj Mahindroo, Raman Preet Singh, Poonam Negi
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmacognosy
Brief description (100 words):	There are reports of antileishmanial activity of steroidal saponins from various plants. the roots of asparagus officinalis contain substantial quantity of steroidal saponins but have not been evaluated for antileishmanial activity. therefore roots of a. officinalis were chosen to evaluate for antileishmanial activity.

Patent filing number:	305216
Date of filing:	11-may-18
Title:	induction based apparatus for chemical synthesis
Status:	Filed
Inventors Name:	Dr. Deepak Kumar, Dr. Raman Preet Singh
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Chemical synthesis
Brief description (100 words):	We have designed an induction based apparatus for chemical synthesis it is better than traditional hot plate as induction based provides heating by magnetic induction, instead of by thermal conduction, or an electrical heating element. very rapid increases in temperature can be achieved as it directly heats the vessel. it is quite efficient, which means it puts less waste of heat, can be quickly turned off, and has safety advantages compared to other system. in can be used for the synthesis of various organic, inorganic and organo metallic complex, various types of materials, nanoparticles. extraction of natural product from plants and bulk batches can be prepared depending upon the sizes of apparatus and scalable to industrial scale.

Patent filing number:	201811019919
Date of filing:	28-may-18
Title:	Novel neuroprotective molecule
Status:	Filed
Inventors Name:	Dr Rohit Goyal
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmacology
Brief description (100 words):	A novel molecule has been developed as a modified analogue of diosgenin which have shown significant neuroprotective activity after making its acetate form. this may be due to it's increased

permeation to brain region from blood brain barrier due to lipophilicity compatibility of acetate form.

Patent filing number:	201811022580
Date of filing:	16-jun-18
Title:	Biological fluidsbioanalytical method for simultaneous estimation of saxagliptin and glimepiride in biological samples
Status:	Filed
Inventors Name:	Navneet Kumar Upadhyay, Poonam Negi, Sameer Sapra
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Method development
Brief description (100 words):	Bioanalytical method for simultaneous estimation of saxagliptin and glimepiride in biological fluids

Patent filing number:	201811041353
Date of filing:	1-nov-18
Title:	Improved topical composition of adapalene for acne treatment and method thereof
Status:	Filed
Inventors Name:	Poonam Negi, Nidhi, Navneet K Upadhyay
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmaceutics
Brief description (100 words):	Improved topical composition of adapalene for acne treatment and their preparation method

Patent filing number:	201811043353
Date of filing:	17-nov-18
Title:	Improved wound healing topical composition of thymoquinone
Status:	Filed
Inventors Name:	Neha Nupur , Indu Kainth , Nidhi , Poonam Negi , Gulshan Sharma
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmaceutical sciences (pharmaceutics)
Brief description (100 words):	the present invention discloses an improved wound healing topical composition of thymoquinone. in the present invention inventors have developed the tq loaded polymeric micelles of chitosan and soy lecithin for the effective treatment of wound injury. the amphiphilicity of the nanoparticles is enhanced by simple

	conjugation of chitosan with soy lecithin. the high wound closure rate is due to synergistic effect of chitosan that is used in preparation of copolymer for polymeric micelles and hydrogel.

Patent filing number:	201811043892
Date of filing:	21-nov-18
Title:	Smart anticancer nanogel
Status:	Filed
Inventors Name:	Tania Dhiman, Rahul Sharma ,Chetna Verma, Dr.Poonam Negi
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Pharmaceutical
Brief description (100 words):	The present invention discloses a ph responsive smart-anticancer nanogel which is able to detect ph changes around the cells and releases anti-cancer drug, as per tumor growth and associated ph change. thus, the tumor gets a ‘sustained release’ of drug in case it grows, otherwise the drug is not released, if no tumor growth and hence no ph change is there. the gel consists of functionalized tragacanth gum (ftg) based nanoparticles with a bio-coating of lipid structured lecithin and the anti-cancer drug e.g. cisplatin is entrapped within the nanoparticles.

Patent filing number:	318481
Date of filing:	4-jun-19
Title:	Column chromatography apparatus
Status:	Filed
Inventors Name:	Ashutosh Kumar Dash, Deepak Kumar
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Design patent
Brief description (100 words):	This invention can be employed for the purification and separation of organic and inorganic substances. it can also be useful for the fractionation of complex mixture, separation of closely related compounds, such as isomers and in the isolation of unstable substances.it can separate several hundreds of components of unknown identity and unknown concentrations, leaving the components unchanged. amounts in the picogram or parts per billion ranges can be also be detected

Patent filing number:	318481
Date of filing:	14-jun-19
Title:	Apparatus for chemical synthesis
Status:	Filed
Inventors Name:	Dr. Deepak Kumar Asst Prof, School of PharmaceutiDr. Deepak Kumar, Dr. Ashutosh Kumar Dash, Dr. Deepak Kapoor
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Chemical synthesis
Brief description (100 words):	There is no report of ultrasound and ultraviolet combined multicompartment apparatus for chemical synthesis, we have designed an apparatus in which can be employed for photolytic cum ultrasound mediated chemical reaction since divided into compartment s multiple reactions can be carried out simultaneously individual optimization, temperature control and inert atmosphere can be regulated in this apparatus ,particle size reduction, deaggregation, improve mixing /solubility and degassing can be possible, different types of u.v radiations can be provided depending on the wavelength

Patent filing number:	319503
Date of filing:	9-jul-19
Title:	Apparatus for automated preparative layer chromatography
Status:	Filed
Inventors Name:	Deepak Kumar; Ashutosh Kumar Dash
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Chemistry
Brief description (100 words):	preparative chromatography has advantages ;in the purification/seperation of various organic, natural product from plants, inorganic and organo metallic complex;multiple tlc plates can be installed simultaneously;identification and seperation of uv, anisaldehyde, pma, ninhydrin etc active substances;heating, inert atmosphere, sample loading, removing and simultaneous drying can be done automatically;destroy uniformity of separation process, chances of error when handled manually;can cause toxicity to health and environmental hazardous due to free exposure of the solvent like dichloromethane, chloroform, benzene, toluene etc ;some of the compounds are sensitive to oxidation when come in contact with air this apparatus will provide inert atmospheres; uniformity of separation process, chances of error is minimized;ecofriendly and health hazard is minimized in laboratory;bulk batches can be purified

depending upon the sizes of apparatus.

Patent filing number:	319504
Date of filing:	9-jul-19
Title:	Advanced multipurpose rotaevaporator
Status:	Filed
Inventors Name:	Ashutosh Kumar Dash, Deepak Kumar, Amar Raj Singh Suri
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Design patent
Brief description (100 words):	This invention can be employed for the complete drying of organic, inorganic substances that's helps in getting neat spectroscopy and identification along with solvent bumping can be prevented and wastage of time and money can be minimized. it can also be useful for the recystallization of complex mixture, separation of closely related compounds

Patent filing number:	201911028140
Date of filing:	12-jul-19
Title:	A process for synthesis of chromene dihydropyrimidinones using fe/al pillared clay
Status:	Filed
Inventors Name:	Ashutosh Kumar Dash, Deepak Kumar
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Utility
Brief description (100 words):	A green chemistry approach has been developed for the synthesis of chromene dihydropyrimidinone (cdhpm) using recyclable fe/al pillared clay catalyst. dihydropyrimidinone was linked to the aromatic portion of the chromene core having ethyl methyl attachment at c2 resulted an excellent anticancer molecule. the compounds inhibited proliferation of lung cancer (a549) cells through mitotic arrest and distortion of microtubule assembly, which was established by our team. at the molecular level, cdhpm rehabilitated the expression of nf-kb involved in cell proliferation, antimigratory, and antitumor activities. these compounds showed remarkable in-vivo efficacy in inhibiting tumour growth factors without any adverse effects.

Patent filing number:	201911031223

Date of filing:	1-aug-19
Title:	Novel drug loaded mesoporous polyhedral oligomeric silsesquioxane system, process and composition thereof
Status:	Filed
Inventors Name:	Dhriti Verma, Deepak Kapoor, Deepak Kumar
Department:	Faculty of pharmaceutical sciences
Specialized area of Patent	Drug delivery
Brief description (100 words):	The present invention provides a novel drug delivery system wherein mesoporous polyhedral oligomeric silsesquioxane is used to entrap docetaxel (dxl) and paclitaxel (ptx) for improved drug delivery and anti-cancer activity. in the present invention, two different anticancer drugs i.e. dxl and ptx are entrapped in an m-poss system separately and evaluated for drug excipient study by ft-ir, particle size by zeta sizer, surface morphology by sem entrapment efficiency, drug release, and in-vitro anticancer activity by mtt assay in selected cell line. the result indicates drug excipient compatibility, high entrapment efficiency, particle size less than 5 micro meter, sustained release of the drug upto 8 hours. the anticancer activity has been carried out using molt-4 cell line indicated high cytotoxic potential or low cell viability for both dxl-m-poss and ptx-m-poss systems.