AA Alkahtane. Seasonal influence on sexual hormones and semen plasma parameters of Arabian sand gazelles (Gazalla subgutrosa marica) in Saudi Arabia. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractThe plasma levels of testosterone (T), follicular stimulating hormone (FSH) and luteinizing hormone (LH) were evaluated in Arabian sand gazelles Gazalla subgutrosa marica to reveal their relation with the sexual desire and testicular efficiency. The levels of those hormones fluctuated over the year; the FSH peak (2.212 ml/mlu) was in October (the beginning of reproductive season). LH level peaked in November (0.73 ml/mlu), while the testosterone level started to increase from July and reached its peak during September and October (340.38 and 419. 5 ng/dl, respectively) and decreased rapidly after November. The levels of some semen inorganic constituents were also measured, the average of sodium, potassium and chloride concentrations were 652.75 ± 124 ± 2.3 and 7.2 ± 0.15 ml mol/L, respectively. Fructose level averaged 141 ± 3.5 mg /dl. The use of the reproductive biotechnologies, which aim to preserve the endangered mammals including Gazelles, is restricted by several factors and depends upon the understanding of the relevant reproductive physiology. In conclusion, sexual hormones were strongly influenced by season. The results from this study suggest more investigation on the reproductive physiological research in order to detect the suitable period for semen collection of Arabian Sand Gazelles (G. subgutturosa marica) in Saudi Arabia. Keywords: Testosterone, follicular stimulating hormone (FSH), luteinizing hormone (LH), fructose and Gazalla subgutrosa maricaAfrican Journal of Biotechnology, Vol 13(52) 4647-4652

SKR Namasivayam, A Aruna, SH Choudhury. Selective isolation and screening of fungi with herbicidal potential and evaluation of herbicidal activity against Vernonia species. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractIn irrigated agriculture, weed control through chemical herbicides, creates various environmental and health hazards which lead to the search for an alternate method of weed management, which is an eco-friendly and effective means. Biological control of weeds using microorganism is now extensively studied to control various economic important weeds. In the present study, herbicidal activity of crude metabolites extracted from the fungal strains isolated from the soil was evaluated against Vernonia species. A total of 125 fungal soil isolates belonging to four fungal species such as Alternaria alternata, Paecilomyces farinosus, Penicillium expansum, and Fusarium oxysporum were isolated. The respective fungal isolates were cultivated in modified Fries media under standard condition. The mycelia and the filtrate were extracted with ethyl acetate and the concentrated extract was evaluated for the herbicidal activity adopting leaf necrosis assay. Among the different isolates, extract prepared from A. alternata and P. farinosus showed maximum herbicidal activity. The present study would suggest the possible use of the fungal extract as a bio-herbicidal agent after the effective formulation and mass production through standard conditions.Keywords: Herbicidal activity, fungi, extracts, Vernonia species, formulationAfrican Journal of Biotechnology, Vol 13(52) 4653-4656

MM Adeyanju, O Ojewunmi, T Akande, EN Ezima, AA Akeredolu, BS Fagbohunka. Partial purification and some physicochemical properties of Aspergillus flavus α-amylase isolated from decomposing cassava peels. Vol. 13 No. 52 (2014): . Page Number Not Found! . Abstractα-Amylase is one of the most important enzymes of great significance due to its wide area of potential application in food, fermentation, textile, paper, detergent and pharmaceutical industries. This study aimed at production of α-amylase from an indigenous fungal source and also ascertaining the properties of the enzyme for maximal activity. The enzyme was isolated from decomposing cassava peels, fractionated at 70% ammonium sulphate and characterized. The fungal isolate was characterized as Aspergillus flavus. The crude enzyme extract had a specific activity of 2.40 Umg-1 which increased to 7.88 Umg-1 on fractionation with ammonium sulphate with a yield of 11.10% and purification fold of 3.28. The Km and Vmax values of 0.52±0.009 g/dL and 62.57±0.23 U/min were obtained, respectively, at 2% cassava starch substrate. The enzyme also demonstrated maximum activity at 70°C and pH 5.0. It thus produces α-amylase which is thermostable, a property which could be exploited for industrial purposes where hydrolysis of starch and other complex carbohydrates are required.Keywords: Cassava, α-amylase, starch hydrolysis, Aspergillus species, industrial application.African Journal of Biotechnology, Vol 13(52) 4657-4662

S Kassouar, MBB Hamed. An active form of calcium and calmodulin dependant protein kinase (ccamk) of Medicago truncatula. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractThe DMI3 gene of the model legume Medicago truncatula encodes a calcium and calmodulin dependent protein kinase (CCaMK) involved in the signalling pathways leading to the establishment of both mycorrhizal and rhizobial root symbiosis. The removal of the auto-inhibitory domain that negatively regulates the kinase activity in M. truncatula results in a constitutively-active form, inducing symbiotic responses in the absence of bacterial signals. In this study, we verified the functionality of a DMI3 variant and its ability to induce spontaneous nodules in M. truncatula dmi3 mutant. Our results based on enzymatic radio activity assay using [y-33P] ATP, suggests that the DMI3-311 variant is active and its corresponding gene (DMI3-311) when introduced in the dmi3 mutant, by Agrobacterium rhizogenes transformation, induced in the formation of a few spontaneous nodules.Keywords:  Medicago truncatula, CCaMK; DMI3 variant; spontaneous nodules.African Journal of Biotechnology, Vol 13(52) 4463-4666

C Odhong, RG Wahome, M Vaarst, S Nalubwama, N Halberg, S Githigia. In vitro anthelmintic effects of crude aqueous extracts of Tephrosia vogelii, Tephrosia villosa and Carica papaya leaves and seeds. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractThe prevalence of anthelmintic resistance and the consumer demand for alternative farming systems that limit the use of chemical anthelmintics has made the search for alternative gastrointestinal nematode parasites control methods crucial. Traditional medicinal/herbal plants can offer an alternative to the reliance on chemical anthelmintic drugs. This study evaluates the efficacy of crude aqueous extracts of Tephrosia vogelii Hook., Tephrosia villosa Pers., and Carica papaya Linn. leaves and Carica papaya Linn. seeds against gastrointestinal nematodes using in vitro egg hatch and larval development inhibition assays. Rectal faecal samples from sheep were subjected to parasitological examination for faecal egg counts (FEC) using the McMaster counting technique. 100 g of dried and poultice aqueous leaf extract of T. vogelii, T. villosa, C. papaya leaves and seeds was blended into liquefaction in 200 ml of distilled water then boiled at 90-100°C for 1 h and cooled. Levamisol and distilled water were used as positive and negative control in the bioassay. Egg hatch assay revealed more than 95.8% reduction in egg hatch at concentration of 500 mg/ml for dried and poultice paste of T. vogelii leaves and C. papaya seeds. Larval development inhibition assay results showed that both dried and poultice paste of T. vogelii leaves and C. papaya seeds extract yielded more than 98% inhibition at a concentration of 500 mg/ml. Based on the LD50 dried extract of C. papaya seeds was most potent extracts for the inhibition of both egg hatching (49.94 mg/ml) and larval development (49.32 mg/ml). Both poultice and dried extract for all the plants showed significant and dose dependent egg and larval development inhibition. These findings indicate that the evaluated plants have potential anthelmintic effect and could provide viable alternatives for the control of gastrointestinal helminthes in ruminants.Keywords: Aqueous extracts, Anthelmintic activity, Medicinal plants, Tephrosia vogelii, Tephrosia villosa, Carica papaya.African Journal of Biotechnology, Vol 13(52) 4667-4672

N Li, Y Liu, M Zhong, H Li. Thinking out of the box: MADS-box genes and maize spikelet development. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractDue to the importance of maize as an agricultural crop and its stature as an ideal model plant for the study of developmental biology in monocots, it is natural that research into its genetic structure has gained worldwide attention. Unfortunately, although much progress has been made in our understanding of the genetic control of the maize spikelet over the last decade, the depth of research in this field still lags behind that of dicots. Here, we review the developmental features of the maize spikelet and the characterization and function of MADS-box genes with the hope of stimulating further research in this area.Keywords: Maize spikelet, ABC model, MADS-box genes, regulationAfrican Journal of Biotechnology, Vol 13(52) 4673-4679

EN Happi, EJT Mbosso, EL Nguemfo, HR Zambou, AGB Azebaze. Anti-toxoplasma gondii activity of constituents from Balsamocitrus camerunensis L (Rutaceae). Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractIsolation, characterization and anti-Toxoplasma gondii activity of constituents from the CH2Cl2/MeOH (1/1) extract of the roots of the cameroonian plant Balsamocitrus camerunensis L. were investigated in this study. Four known coumarins derivatives were isolated, namely, marmin (1), imperatorin (2), xanthoxyletin (3), 6,7-Dimethoxycoumarin (4) and an acridone derivative namely 1-hydroxy-3-methoxy-acridone (5). Their structures were established on the basis of their spectroscopic data compared to reported results. Some of the isolated compounds showed noteworthy activity against Toxoplasma gondii intracellular parasite in mammals with an inhibition of parasite growth of around 46.44% for compound 4 and 82.12% for compound 3 which was the most active compound.Keywords: Balsamocitrus camerunensis, Rutaceae, coumarins, alkaloid, toxoplasmacidial activity.African Journal of Biotechnology, Vol 13(52) 4680-4684

M Nadjet, D Abderezzak, KH Meriem. Effect of three types of composts of olive oil by-products on growth and yield of hard wheat "Triticum durum Desf.”. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractThe extraction of olive oil generates colossal by-products quantities; generally unexploited and causes serious environmental problems in Algeria. In tackling this problem, we performed three types of composts (C1: 50% cows manure, 50% olive husks and olive mill wastewaters; C2: 50% olive husks treated by the lime, 50% cows manure with fresh urea and olive mill wastewaters; C3: 50% olive husks, 50% cows manure and water) for five months to use them as biofertilizers for hard wheat "Triticum durum Desf." ‘Waha’ cultivar. Results obtained showed that at the end of composting, the pH stabilized at 7.29 to 7.45; however saltiness was variable. For the three composts, the organic matter was degraded and the polyphenols content decreased significantly; C2 was the compost that contains more mineral elements (N, P, K, Ca and Na). Indeed, the use of this compost as biofertilizer allowed an increase of the yield to 30.61% and an improvement of wheat growth, spikes’ number (5.25±0.3 per plant in comparison with 1±0.09 for control) and seeds (57.12±0.99 per plant in comparison with 14.87±1.88 for control).Keywords: Compost, Olive husks, olive mill wastewaters, Triticum durum Desf., Algeria.African Journal of Biotechnology, Vol 13(52) 4685-4693

BSO Colonia, AFC Junior, AFC Junior. Screening and detection of extracellular cellulases (endo- and exo-glucanases) secreted by filamentous fungi isolated from soils using rapid tests with chromogenic dyes. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractThe screening plate method is commonly used for previous detection of cellulases produced by micro-organisms with biotechnological potential. In this manuscript, the authors aim to evaluate the hydrolytic ability of different fungi isolated from soil for the production of cellulolytic enzymes for cellulose degradation and determining the enzymatic index (EI) in relation to the growth of fungal colony and halo. The fungi were grown in carboxymethyl cellulose medium (CMC 1% w/v) and Avicel medium (Cellulose microcrystalline 1% w/v) for the determination of endo-glucanases and exo-glucanases respectively at 28°C for 48 h. Four chromogenic dyes were used: Congo Red, Phenol Red, Trypan Blue and Gram’s Iodine. Also, another screening method was compared using carboxymethyl cellulose medium (CMC 1% w/v) at 28°C for 96 h and exposed with Congo Red dye in buffer Tris HCl 0.1 M, pH 8.0. The results obtained allowed to find significant differences between the tested fungi, the growth time and chromogenic dyes. The strains with higher Enzymatic Index (EI) were JCO1, UFT1, UFT2 and UFT3 for endo-glucanases and JCO2, UFT1, UFT2 and UFT3 for exo-glucanases.Keywords: Cellulases, chromogenic dyes, filamentous fungi, endo-glucanase, exo-glucanase.African Journal of Biotechnology, Vol 13(52) 4694-4701

GR Placido, RM Silva, MAP Silva, DC Furtado, MG Santos, M Caliari, DEC Oliveira. Use of pectin in the postharvest conservation of tangerine. Vol. 13 No. 52 (2014): . Page Number Not Found! . AbstractThe aim of the present study was to evaluate the postharvest behavior of tangerine coated with different pectin concentrations during storage under controlled temperature (22°C ± 0.1). Fruits with green color (± 90% of the surface) were divided into four groups: fruits without any coating (T1) and fruits coated with pectin solution at 4 g / 100 g (T2), 6 ml / 100 ml (T3) and 8 g / 100 ml (T4). Tangerines were evaluated during the storage period (0, 3, 6, 9, 12 and 15 days) for the following parameters: vitamin C, soluble solids (SS), total titratable acidity (TTA), mass loss, turgidity pressure and external appearance through colorimetric analysis. In general, coated fruits showed lower mass loss over the storage period. The polynomial model was the model that best suited the experimental data. Regarding to the physico-chemical characteristics, the citrus fruits and non-climacteric, showed little variation in the treatments and changes that have occurred and which can be explained by the variability of the fruits used. In general, the fruit treated with different concentrations of pectin kept green for longer period and with this feature of the fruits, is better accepted by the consumer. Keywords: Citrus deliciosa Tenore, pectin, coatings, coloring, mathematical modelsAfrican Journal of Biotechnology, Vol 13(52) 4702-4710