Frankincense : Medicinal Uses

http://en.wikipedia.org/wiki/Frankincense

Frankincense

[Excerpt]

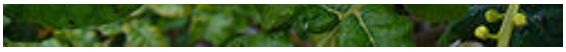
Frankincense, also called olibanum, is an aromatic resin obtained from trees of the genus Boswellia, particularly Boswellia sacra, B. carteri, B. thurifera, B. frereana and B. bhaw-dajiana (Burseraceae). The English word is derived from Old French "franc encens" (i.e., high quality incense)[1] and is used in incense and perfumes.

There are four main species of Boswellia that produce true frankincense and resin from each of the four is available in various grades. The grades depend on the time of harvesting. The resin is hand-sorted for quality.

Frankincense is mentioned in the Bible as one of the three gifts the wise men gave to the young child Jesus.

Description

Flowers and branches of the Boswellia sacra tree, the species from which most frankincense is derived



Frankincense is tapped from the scraggly but hardy trees by slashing the bark, which is called striping, and allowing the exuded resin to bleed out and harden. These hardened resins are called tears. There are several species and varieties of frankincense trees, each producing a slightly different type of resin. Differences in soil and climate create even more diversity of the resin, even within the same species. Boswellia Sacra trees are considered unusual for their ability to grow in environments so unforgiving that they sometimes grow out of solid rock. The initial means of attachment to the rock is unknown but is accomplished by a bulbous disk-like swelling of the trunk. This growth prevents it from being ripped from the rock during violent storms. This feature is slight or absent in trees grown in rocky soil or gravel. The trees start producing resin when they are about eight to 10 years old.[2] Tapping is done two to three times a year with the final taps producing the best tears due to their higher aromatic terpene, sesquiterpene and diterpene content. Generally speaking, the more opaque resins are the best quality. Fine resin is produced in Somalia and along the northern coast of Somalia, from which the Roman Catholic Church draws its supplies.[3]

Recent studies have indicated that frankincense tree populations are declining, partly due to over-exploitation. Heavily tapped trees produce seeds that germinate at only 16% while seeds of trees that had not been tapped germinate at more than 80%. In addition, burning, grazing, and attacks by the longhorn beetle have reduced the tree population.[4] Conversion (clearing) of frankincense woodlands to agriculture is also a major threat.[5]...

Traditional medicine

Boswellia sacra tree, from which frankincense is derived, growing inside Biosphere 2

Frankincense resin is edible and is used in traditional medicines in Africa and Asia for digestion and healthy skin. For internal consumption, it is recommended that frankincense be translucent, with no black or brown impurities. It is often light yellow with a (very) slight greenish tint. It is often chewed like gum, but it is stickier.

In Ayurvedic medicine frankincense (Boswellia serrata), commonly referred to in India as "dhoop," has been used for hundreds of years for treating arthritis, healing wounds, strengthening the female hormone system and purifying the air. The use of frankincense in Ayurveda is called "dhoopan". In Somali, Ethiopian, Arabian, and Indian cultures, it is suggested that burning frankincense daily in the house brings good health.[17]

Frankincense essential oil

Frankincense (Boswellia carteri) essential oil

The essential oil of frankincense is produced by steam distillation of the tree resin. The oil's chemical components are 75% monoterpenes, sesquiterpenes, monoterpenoles, sesquiterpenols, and ketones. It has a good balsamic sweet fragrance, while the Indian frankincense oil has a very fresh smell. Steam or hydro distilled frankincense oil does contain a number of boswellic acids (triterpenoids) which represents a method of validating the authenticity of the essential oil. The chemistry of the essential oil is mainly monoterpenes and sesquiterpenes with small amounts of diterpenoid components being the upper limit in terms of molecular weight.[18][19][20] Frank A, Unger M. J Chromatogr A. 2006 Apr 21;1112(1-

2):255-62. Analysis of frankincense from various Boswellia species with inhibitory activity on human drug metabolising cytochrome P450 enzymes using liquid chromatography mass spectrometry after automated on-line extraction.

Perfume

Olibanum is characterized by a balsamic-spicy, slightly lemon, fragrance of incense, with a conifer-like undertone. It is used in the perfume, cosmetic and pharmaceutical industries.

Medical research

For therapy trials in ulcerative colitis, asthma and rheumatoid arthritis there are only isolated reports and pilot studies from which there is not yet sufficient evidence of safety and efficacy. Similarly, the long-term effects and side effects of taking frankincense has not yet been scientifically investigated. Nonetheless, several preliminary studies have been published.

Frankincense

A 2008 study reported that frankincense smoke was a psychoactive drug that relieves depression and anxiety in mice.[21][22] The researchers found that the chemical compound incensole acetate[23] was responsible for the effects.[21]

In a different study, an enriched extract of "Indian Frankincense" (usually Boswellia serrata) was used in a randomized, double-blinded, placebo-controlled study of patients with osteoarthritis. Patients receiving the extract showed significant improvement in their arthritis in as little as seven days. The compound caused no major adverse effects and, according to the study authors, is safe for human consumption and long-term use.[24]

In a study published in 2009, it was reported that "Frankincense oil appears to distinguish cancerous from normal bladder cells and suppress cancer cell viability."[25]

A 2012 study in healthy volunteers determined that exposure to 11-keto-β-boswellic acid (KBA), a lead boswellic acid in the novel solubilized frankincense extract Boswelan, is increased when taken with food. However, simulations based on a two-compartment pharmacokinetic model with single first-order absorption phase proposed that the observed food interaction loses its relevance for the simulated repeated-dose scenario.[26]

In a 2012 study, researchers found that the "behavioral effect [of insensole actetate] was concomitant to reduced serum corticosterone levels, dose-dependent down-regulation of corticotropin releasing factor and up-regulation of brain derived neurotrophic factor transcripts IV and VI expression in the hippocampus. These data suggest that IA modulates the hypothalamic–pituitary–adrenal (HPA) axis and influences hippocampal gene expression, leading to beneficial behavioral effects supporting its potential as a novel treatment of depressive-like disorders."[27]

In 2013, Leicester University researchers announced findings that AKBA (acetyl-11-keto-beta-boswellic acid), a chemical compound in the resin, has cancer-killing properties and has the potential to destroy ovarian cancer cells. The lead researcher from the University's Department of Cancer Studies and Molecular Medicine announced the findings after a year studying the AKBA compound with ovarian cancer cell lines in vitro that showed it is

effective at killing late stage cancer cells. Kamla Al-Salmani noted that among surprising findings were that some cells that had become resistant to chemotherapy were killed during the in vitro study. The efficacy of AKBA as a potential medicine for treatment of cancers(colon, breast and prostate) has been tested. The results are based on the preliminary and unverified findings of the laboratory study, which marked the first study to identify an ability to fight ovarian cancer. It is in early stages and, as of 2014, yet to be published in a peer-reviewed journal.[28][29][30]

Chemical composition

These are some of the chemical compounds present in frankincense:

"acid resin (56 per cent), soluble in alcohol and having the formula $C_{20}H_{32}O_4$"[31]
gum (similar to gum arabic) 30–36%[31]
3-acetyl-beta-boswellic acid (Boswellia sacra)[32]
alpha-boswellic acid (Boswellia sacra)[32]
4-O-methyl-glucuronic acid (Boswellia sacra)[32]
incensole acetate
phellandrene[31]

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http://news.bbc.co.uk/2/hi/middle_east/8505251.stm

Frankincense: Could it be a cure for cancer?

[Excerpt]

Cancer hope

But immunologist Mahmoud Suhail is hoping to open a new chapter in the history of frankincense.

Scientists have observed that there is some agent within frankincense which stops cancer spreading, and which induces cancerous cells to close themselves down. He is trying to find out what this is.

"Cancer starts when the DNA code within the cell's nucleus becomes corrupted," he says. "It seems frankincense has a re-set function. It can tell the cell what the right DNA code should be.

"Frankincense separates the 'brain' of the cancerous cell - the nucleus - from the 'body' - the cytoplasm, and closes down the nucleus to stop it reproducing corrupted DNA codes."

Working with frankincense could revolutionise the treatment of cancer. Currently, with chemotherapy, doctors blast the area around a tumour to kill the cancer, but that also kills healthy cells, and weakens the patient. Treatment with frankincense could eradicate the cancerous cells alone and let the others live.

The task now is to isolate the agent within frankincense which, apparently, works this

wonder. Some ingredients of frankincense are allergenic, so you cannot give a patient the whole thing.

Dr Suhail (who is originally from Iraq) has teamed up with medical scientists from the University of Oklahoma for the task.

In his laboratory in Salalah, he extracts the essential oil from locally produced frankincense. Then, he separates the oil into its constituent agents, such as Boswellic acid.

"There are 17 active agents in frankincense essential oil," says Dr Suhail. "We are using a process of elimination. We have cancer sufferers - for example, a horse in South Africa - and we are giving them tiny doses of each agent until we find the one which works."

"Some scientists think Boswellic acid is the key ingredient. But I think this is wrong. Many other essential oils - like oil from sandalwood - contain Boswellic acid, but they don't have this effect on cancer cells. So we are starting afresh."

The trials will take months to conduct and whatever results come out of them will take longer still to be verified. But this is a blink of the eye in the history of frankincense.

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Yuan Y, et al. Acetyl-11-keto-beta-boswellic acid (AKBA) prevents human colonic adenocarcinoma growth through modulation of multiple signaling pathways. Biochim Biophys Acta 2013; 1830(10): 4907-16.

Zhang YS, et al. Acetyl-11-keto-ß-boswellic acid (AKBA) inhibits human gastric carcinoma growth through modulation of the Wnt/ß-catenin signaling pathway. Biochim Biophys Acta 2013; 1830(6): 3604-15.

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http://www.ncbi.nlm.nih.gov/pubmedhealth/behindtheheadlines/news/2013-12-23-can-frankincense-really-fight-cancer/
23 Dec 2013

Can frankincense really fight cancer?

"Frankincense 'fights cancer'," is the festive health headline from the Mail Online. The "aromatic substance from the Nativity story could help treat ovarian tumours," it says.

The news is based on a University of Leicester press release entitled "Christmas gift brings treatment hope for cancer patients". Unfortunately, many more Christmases are likely to pass before anyone is treated with frankincense for ovarian cancer.

This is because the news is based on positive early findings from research carried out on the AKBA compound found in frankincense and ovarian cancer cells in a lab.

The press release says the researchers have been able to show the ability of the compound to combat cancer cells in late-stage ovarian cancer.

This is festive news, and the press team at the University of Leicester should be congratulated for their ingenuity. However, limited conclusions can be drawn from the preliminary findings of this laboratory study as it is yet to be published in a peer-reviewed journal. And some of the claims should not be taken at face value; in particular the press release's claim that frankincense has no known side effects. Such claims would need rigorous scientific evaluation before they could be verified.

This research is still at a very early stage and as the press release points out, frankincense is yet to be studied for the treatment of ovarian cancer in humans.

What is ovarian cancer?

Ovarian cancer affects more than 6,500 women in the UK each year and is the fifth most common cancer among women. As the symptoms of ovarian cancer can be similar to those of other conditions, it can be difficult to recognise, particularly in the early stages of the disease. However, there are early symptoms to look out for, such as persistent bloating, pain in the pelvis and lower stomach, and difficulty eating.

Why is this in the news?

The story is based on a press release from the University of Leicester about the findings of a study carried out by researchers from the University. The researchers looked at a compound derived from frankincense called acetyl-11-keto-beta-boswellic acid (AKBA) and ovarian cancer cells.

The study has not yet been published in a peer reviewed scientific journal, so the findings reported should be treated with caution. With only the press release available it is not possible to fully appraise the design and methods of this study.

The study appears to have been carried out in the laboratory for about a year and was funded by the Omani government. No other study methods are provided.

It is possible that the press release is being issued now because of the link between frankincense and Christmas.

What is frankincense?

Frankincense is a fragrant plant resin that comes from the Boswelllia sacra tree found across Africa and the Arabian peninsula, including Yemen and Oman. It is one of the famous gifts said to have been given by the Wise Men when they visited newborn Jesus.

Frankincense has been used as a folk medicine for centuries due to its anti-inflammatory properties. Previous studies have linked the AKBA compound as a potential treatment for other cancers as well as osteoarthritis.

What are the reported study findings?

In the press release and accompanying audio interview, Dr Mark Evans from the University of Leicester, who supervised the research, says: “We have shown that this frankincense compound is effective at killing ovarian cancer cells at realistic concentrations.

“What has been most surprising is that the cells we have tested which are resistant to chemotherapy have shown to be more sensitive to this compound, suggesting frankincense may indeed be able to help overcome drug resistance, and lead to an improved survival rate for patients with late-stage ovarian cancer”.

Conclusion

Very little can be said, based on the preliminary and unverified findings of this laboratory study. The study is yet to be published in a peer-reviewed journal and until this happens, it is worth exercising a little healthy scepticism about the claims being made and the time of year they are being made in. This research is still at a very early stage and as the press release points out, frankincense is yet to be studied for the treatment of ovarian cancer in humans.

The findings of this preliminary research do not affect the current methods for treating ovarian cancer.

Links To The Headlines

Frankincense 'fights cancer': Aromatic substance from the Nativity story could help treat ovarian tumours. Daily Mail. December 20 2013
http://www.dailymail.co.uk/health/article-2526816/Frankincense-fights-cancer-Aromatic-substance-Nativity-story-help-treat-ovarian-tumours.html

http://theresanoilforthat.blogspot.com/2012/02/frankincense-and-cancer.html

Frankincense and Cancer

[Excerpt]

In a study published in March 2009 by the University of Oklahoma Health Sciences Center it was reported that"Frankincense oil appears to distinguish cancerous from normal bladder cells and suppress cancer cell viability

Study: Frankincense may fight some cancers
January 31, 2006

A Virginia Tech scientist says frankincense oil might be useful in treating malignant melanoma -- an aggressive cancer that attacks humans and equines.

Approximately 54,000 malignant melanoma cases are diagnosed annually, according to the American Cancer Society, and there are many similarities between malignant melanoma in horses and malignant melanoma in people.

Recognizing the opportunity for translational research, John Robertson, a professor in the Virginia-Maryland Regional College of Veterinary Medicine at Virginia Tech, has been studying the disease and an experimental treatment involving frankincense oil.

Frankincense is a botanical oil distillate made from fermented plants that contains boswellic acid, a component known to have anti-neoplastic properties.

During a recent presentation before a regional meeting of the American Cancer Society in Roanoke, Va., Robertson -- director of the college's Center for Comparative Oncology -- said he's found the oil has fairly selective anti-tumor activity and doesn't appear to disrupt normal cells."I think this research on frankincense oil suggests that this ancient medicine may have significant modern uses for chemotherapy of non-resectable malignancies," said Robertson.

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http://gulfnews.com/news/gulf/oman/oman-researchers-find-cancer-treatment-in-frankincense-1.1251940

Muscat: Omani researchers at the University of Nizwa have succeeded in producing a medicinally important compound from Omani frankincense, luban, for breast cancer treatment.

Dr Ahmad Sulaiman Al Harrasi, holder of the University’s Chair of Oman’s Medicinal Plants and Marine Natural Products, said researchers have succeeded in isolating and enhancing the percentage of AKBA found in the resin of Omani frankincense.

AKBA (beta-boswellic acid, keto-beta-boswellic acid, and acetyl-keto-beta-boswellic acid) has been indicated in apoptosis, or death of cancer cells, in particular brain tumours and cells affected by leukaemia or colon cancer.

Dr Al Harrasi pointed out that the research was done under the chairmanship of Oman Medicinal Plants and Marine Natural Products at the Nizwa University and was funded jointly by the Oman Research Council and Nizwa University,

This discovery, the Nizwa University scientist says, will play a vital medicinal as well as economic role. “AKBA is very costly,” he said, explaining the economic benefits to the country.

Omani media have claimed that a “cure” for cancer had been found, which Al Harrasi denies.

“We would like to dispel certain misgivings regarding our discovery,” Dr Al Harrasi told Gulf News over the phone from Nizwa, about 160km northwest of Muscat.

“We have not discovered a breast cancer cure and it is not from oil as reported in some media and being circulated on WhatsApp as well as social media,” he added

The Assistant Dean for Scientific Studies and Research in Nizwa University also clarified that the compound had not been tested on humans. “We experimented on various cancer cell alliances for our research,” he clarified, adding that their experiments on several cancer cells showed positive results.

He also revealed that patent registration process was under process and 60 to 70 per cent of work was done. “The draft [for patent] has been accepted,” he said

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http://ecancer.org/news/465.php

Frankincense oil derived from Boswellia carteri induces bladder tumor cell specific cytotoxicity

18 Mar 2009

Frankincense oil - a potential treatment option for bladder cancer

An enriched extract of the Somalian Frankincense herb Boswellia carteri has been shown to kill off bladder cancer cells. Frankincense oil is prepared from aromatic hardened gum resins obtained by tapping Boswellia trees. One of the main components of frankincense oil is boswellic acid, a component known to have anti-neoplastic properties. Research presented in the peer reviewed journal, BMC Complementary and Alternative Medicine found that Frankincense oil might represent an alternative intravesical agent for bladder cancer treatment.

HK Lin and his team, from the University of Oklahoma Health Sciences Center and Oklahoma City VA Medical Center, set out to evaluate frankincense oil for its anti-tumour activity in bladder cancer cells. The authors investigated the effects of the oil in two different types of cells in culture: human bladder cancer cells and normal bladder cells. The team found that frankincense oil is able to discriminate between normal and cancerous bladder cells in culture, and specifically kill cancer cells.

Within a range of concentration, frankincense oil suppressed cell viability in bladder transitional carcinoma J82 cells but not in UROtsa cells. Comprehensive gene expression analysis confirmed that frankincense oil activates genes that are responsible for cell cycle arrest, cell growth suppression, and apoptosis in J82 cells. However, frankincense oil-induced cell death in J82 cells did not result in DNA fragmentation, a hallmark of apoptosis.

Article: Frankincense oil derived from Boswellia carteri induces tumor cell specific cytotoxicity
Mark Barton Frank, Qing Yang, Jeanette Osban, Joseph T Azzarello, Marcia R Saban, Ricardo Saban, Richard A Ashley, Jan C Welter, Kar-Ming Fung and Hsueh-Kung Lin
http://www.biomedcentral.com/bmccomplementalternmed/

VIDEO

http://www.youtube.com/watch?v=hsJg_kmvQDE?

FRANKINCENSE FOR CANCER - PRE CLINICAL RESULTS

http://kfor.com/2013/04/30/the-biblical-cure/

Frankincense: The Biblical cure? | KFOR.com

PATENTS

Novel Salts Of Boswellic Acids And Selectively Enriched Boswellic Acids And Processes For The Same
US2013116211

New salts or ion-pair complexes obtained by a reaction between boswellic acids or selectively enriched 3-O-acetyl-11-keto-beta-boswellic acid (AKBA) or 11-keto-beta-boswellic acid (KBA) compounds obtained through a new improved process, and an organic amine, more particularly with glucosamine. These salts or ion pair complexes are useful in nutraceuticals and in food supplements for anti-inflammatory and analgesic treatment of joints and cancer prevention or cancer therapeutic agents. These salts or ion pair complexes could also be used in cosmetic or pharmaceutical composition for external treatment of body parts or organs to treat inflammatory diseases or cancer.

[0001] This invention relates to novel salts or ion pair complexes of substituted/unsubstituted boswellic acid with certain organic bases particularly though not exclusively with glucosamine. This invention also includes an improved process for selectively enriching 3-O-acetyl-11-keto-[beta]-boswellic acid and 11-keto-[beta]-boswellic acid hereinafter referred as (AKBA) and (KBA) respectively from an extract containing a mixture of boswellic acids.

BACKGROUND ART

[0002] Inflammation is a critical protective biological process triggered by irritation, injury or infection, characterized by redness and heat, swelling, loss of function and pain. In addition to the foregoing induced conditions, inflammation can also occur due to age related factors. Life expectancy of general population has increased dramatically during the past few decades due to efficient control of infectious diseases and better access to nutritious food. This positive enhancement in life span coupled with changing environmental conditions elevated the incidence of chronic age-related diseases such as arthritis, diabetes, cancer, cardiovascular diseases, etc. Chronic inflammatory condition and cancer have become emerging health concerns in a number of countries across the globe and for people among all cultures. Arthritis is one of the most debilitating diseases of modem times. The quality of life for sufferers of these two diseases and their families is severely affected. Non-steroidal anti-inflammatory drugs are most commonly used remedies for rheumatic diseases. Presently, there has been a tremendous surge in demand for natural non-steroidal anti-inflammatory drugs (NSAIDs) because of their established safety and efficacy, through decades of usage by various cultures.

[0003] The inflammatory and carcinogenesis processes are known to be triggered by increased metabolic activity of arachidonic acid. Arachidonic acid diverges down into two main pathways during this process, the cyclooxygenase (COX) and lipoxygenase (LOX) pathways. The COX pathways lead to prostaglandin and thromboxane production and the LOX pathways leads to leukotrienes (LTS) and hydroxyl eicosatetetraenoic acid (HETEs). These classes of inflammatory molecules exert profound biological effects, which enhance the development and progression of human cancers,

[0004] Leukotrienes and 5(S)-HETE are important mediators for inflammatory, allergic and obstructive process. Leukotrienes increase micro vascular permeability and are potent chemotactic agents. Inhibition of 5-lipoxygenase indirectly reduces the expression of TNF-[alpha] (a cytokine that plays a key role in inflammation). 5-Lipoxygenase is therefore the target enzyme for identifying inhibitors, which have potential to cope with a variety of inflammations and hypersensitivity-based human diseases including asthma, arthritis, bowel diseases such as ulcerative colitis and circulatory disorders such as shock and ischaemia.

[0005] Similarly prostaglandins are intercellular messengers that are produced in high concentration at the sites of chronic inflammation and are capable of causing vasodilation, increased vascular permeability and sensitizing pain receptors. The pro-inflammatory prostaglandins (PGE2) are produced by inducible isoform cyclooxygenase-2 (COX-2). The prostaglandins that are important in gastrointestinal and renal function are produced by the constitutively expressed isoform, cyclooxygenase-1 (COX-1). COX-1 is the protective housekeeper isoform and it regulates mucosal cell production of mucous that provides a barrier between the acid and pepsin present in gastric secretions. Non-selective COX inhibitors thus produce serious side effects. Scientists around the world are thus investing a major effort in identifying non-steroidal anti-inflammatory drugs that inhibit 5-lipoxygenase and cyclooxygenase-2 enzymes. As both COX-2 and 5-LOX are commonly expressed in any kind of inflammatory condition, efforts are currently being focused to obtain the so called dual acting anti-inflammatory drugs that are able to inhibit both COX-2 and 5-LOX enzymes. Unfortunately, the odds of finding a new dual acting natural NSAID that can truly alleviate the symptoms of inflammatory diseases are very thin. Hence, the researchers conceived the idea that using a combination of drugs, one having the COX-2 inhibitory activity and the other having 5-LOX inhibitory activity, as the next best option.

[0006] Rheumatoid arthritis is a chronic inflammatory condition that affects the lubricating mechanism and cushioning of joints. As a result of this autoimmune disease the bone surfaces are destroyed, which leads to stiffness, swelling, fatigue and crippling pain. Osteoarthritis is the common form of arthritis and results primarily from progressive degeneration of cartilage glycoaminoglycons. The damage is often compounded by a diminished ability to restore and repair joint structures including cartilage. The smooth surface of the cartilage becomes hard and rough creating friction. As a result of this the joint gets deformed, painful and stiff. Studies have indicated that over 40 million Americans have osteoarthritis, including 80% of persons over the age of 50. The major focus for osteoarthritis treatment, should therefore involve agents that not only stimulate the production of biological substances necessary for regeneration of cartilage cells and proper joint function but also diminish pain inflammation.

[0007] It is therefore an object of the present invention to provide a salt or ion pair complex as a dietary supplement, that exhibits anti-arthritic properties without deleterious side effects.

[0008] Boswellic Acids

[0009] Gum resin of Boswellia species known as Indian frankincense has been used as an anti-inflammatory agent in Traditional Ayurvedic Medicine in India. Ancient Ayurvedic texts described its therapeutic use. Clinical trails performed by CSIR laboratories in India have shown fair to excellent results in 88% of the patients, with no adverse side effects (Singh, G. B., Status report, anti-inflammatory drugs from plant sources, 1982). A randomized, double blind, placebo controlled clinical trials on patients with osteo-arthritis of knee exhibited statistically significant improvement in the pain, decreased swelling and increased knee flexion etc. (Kimmatkar, Phytomedicine, 2003, 10, 3-7), The therapeutic effects shown by Boswellia serrata extract were comparable to those exhibited by sulfasalazine and mesalazine in patients with ulcerative colitis. (Gupta, I., et al., Eur. J. Med. Res., 1998, 3, 511-14 and Gerhardt, H., et. al., Gastroenterol., 2001, 39, 11-17). The source of anti-inflammatory actions has been attributed to boswellic acids (Safayhi, H., et al., Planta Medica, 1997, 63, 487-493 and J. Pharmacol. Exp. Ther., 1992, 261, 1143-46, both the journals published from USA), a group of triterpene acids isolated from the Boswellia resin (Pardhy, R. S., et al., Indian J. Chem., 1978, 16B, 176-178). These compounds exert anti-inflammatory activity by inhibiting 5-lipoxygenase (5-LOX). The boswellic acids also gained prominence recently for their antiproliferative actions. Boswellic acids inhibited several leukemia cell lines in vitro and inhibited melanoma growth and induced apoptosis (Hostanska, K., et al., Anticancer Res., 2002, 22(5), 2853 -62). The acetyl boswellic acids were found to be unique class of dual inhibitors of human topoisomerases I and II a (Syrovets, T. et al., Mol. Pharmacol., 2000, 58(1), 71-81). Immunomodulatory activity of boswellic acids had been reported by Sharma et al. in Phytotheraphy Research, 1996, 10, 107-112, published from USA. A detailed study on the structural requirements for boswellic acids indicated that of all the six acids, 3-O-acetyl-11-keto-[beta]-boswellic acid, hereinafter referenced as AKBA shows most pronounced inhibitory activity against 5-LOX (Sailer, E. R., et al., British J. Pharmacology, 1996, 117, 615-618). AKBA acts by unique mechanism, in which it binds to 5-LOX in a calcium-dependent and reversible manner and acts as a non-redox-type, non-competitive inhibitor (Sailer, E. R., et al., Eur. J. Biochem., 1998, 256, 364-368). The AKBA or a plant extract or composition containing it was reported to be effective for topical application, as an agent to soften lines and/or relax the skin (Alain, M., et. al., U.S. patent application No. 2004/0166178, dated Aug. 26, 2004). AKBA has thus become the subject of intensive research for its potential for the treatment of chronic inflammatory disorders.

[0010] Glucosamine

[0011] Glucosamine is a natural substance found in high quantities in joint structures. The main function of glucosamine in joint structures is to produce cartilage components necessary for maintaining and repair joint tissue. Glucosamine stimulates the formation of joint structural components such as collagen, the protein of the fibrous substances that holds the joints together and helps to build-up the cartilage matrix, Collagen is the main component of the shock-absorbing cushion called articular cartilage. It is also a necessary nutrient in the production of synovial fluid. Some people may lose the ability with age to produce glucosamine, thereby inhibiting the grpwth of cartilage destroyed during wear and tear in osteoarthritis patients (Towheed, T. E., Arthritis and Rheumatism, 2003, 49, 601-604). When taken orally as a dietary supplement in the form of glucosamine sulfate, it has been shown to exert protective effect against joint destruction and is selectively used by joint tissues to promote healthy joint function and show potential therapeutic effect in osteoarthritis (Perry, G. H., et al., Ann. Rheum. Dis., 1972, 31, 440-448).

[0012] Several double-blind studies with glucosamine sulfate showed therapeutic effects comparable to or even better than non steroidal anti-inflammatory drugs in relieving the symptoms of osteoarthritis (Vaz, A. L., Curr. Med, Res. Opin., 1982, 8, 145-149; D'Ambrosia, E. D., et al., Pharmatherapeutica, 1982, 2, 504-508 and Tapadinhas, M. J., et al., Pharmatherapeutica, 1982, 3, 157-168). The NSAIDs offer only symptomatic relief, whereas glucosamine addresses the root cause of osteoarthritis disease. It support body's natural ability to tackle the disease on its own by providing the building blocks to many structural components such as glucosaminoglycons to repair the damage caused by osteoarthritis. Glucosamine hydrochloride is used for this study.

DISCLOSURE OF THE INVENTION

[0013] The organic solvent extract of the gum resin of Boswellia serrata contain a total of six boswellic acids and two timcallic acids. These acids are shown in FIG. 1, and are represented by B1, B2, B3, B4, B5, B6, T1, T2 and T3. Studies have indicated AKBA as the most potent an anti-inflammatory agent among all the boswellic acids. The concentration of AKBA, indicated as B2 in the FIG. 1, amounts only in the range of 1-10% in the extract, but most often it is in the range of 2-3%. The potential usefulness of boswellic acids in general and AKBA in particular can be a great incentive to take-up further development of these compounds in all possible aspects.

[0014] The present invention is aimed at selective enrichment of active compounds, KBA and AKBA to a therapeutically useful range such as 30% to 100% from natural Boswellia extract using a new improved process and then converting the enriched compounds to a salt or ion pair complex with enhanced solubility and improved therapeutic efficacy for use as an anti-arthritic dietary supplement. The salt or ion pair combination may be accomplished by using an acid function of the boswellic acid and an amine function from amino organic compounds, especially glucosamine.

[0015] The enrichment of AKBA from natural Boswellia extract was already described in international patent application (PCT #WO 03/074063, dated. 12th September 2003) and also in US patents (application #20030199581, publication dated 23 Oct. 2003 and application #20040073060, publication dated 15 Apr. 2004). The processes described in these patents involve multi-step procedures and requires tedious work-up and chromatographic

purifications. The present invention is an improved method, where in the acetylation and allylic oxidation steps are conducted in a single pot. This process eliminates the need for labor-intensive work-up following acetylation and time consuming product drying before proceeding to the oxidation step, as required by the processes reported in the patents and journal articles. This process also efficiently utilizes the un-reacted pyridine and acetic anhydride from the acetylation step to form highly active oxidizing systems such as CrO3/pyridine and CrO3/acetic anhydride. The present invention effectively reduces the overall reaction time for peracetylation and the oxidation steps. The new process eliminates the presence of possible chromium impurities in the KBA/AKBA enriched (30-40%) product by acid/base treatment without any need for chromatography.

[0016] A fraction enriched to 30-40% 11-keto-[beta]-boswellic acid (KBA), can be accomplished by subjecting the crude mixture to basic treatment, followed by filtration and acidification of the mother liquor, and then separation of the white solid by filtration and drying, It was then reacetylated to obtain 30-40% AKBA enriched fraction, The fractions enriched to higher percentage (40-100%) of KBA and AKBA can be obtained by applying chromatographic methodology on hydrolysis mixture and re-acetylation mixture, respectively.

[0017] An ionic salt or ion pair complex of boswellic acids containing AKBA in the range of 5 to 100% can be obtained by using appropriately enhanced boswellic compound and a suitable amine compound and adopting the representative procedure given in the examples.

[0018] This invention relates to novel salts or ion pair complexes of boswellic acid and keto boswellic acid and acetyl keto boswellic acid with glucosamine having the following general formula.

wherein R1 and R2 are H or taken together to form a keto group;
R3 is H or acyl group;
X is an heterocyclic base or an organic bases represented by NHR4R5R6:
wherein R4, R5 and R6, are H or substituted or unsubtituted lower or higher
alkyl group or aryl group or cyclic alkyl group.

[0024] Wherein the organic bases are glucosamine (2-amino-2-deoxy-D-glucose), nicotinamide (3-pyridinecarboxamide), pyridoxins (5-hydroxy-6-methyl-3,4-pyridinedimethanol), caffeine (3,7-dihydro-1,3,7-trimethyl-1H-purine-2,6-dxone), creatine (N-(aminoiminomethyl)-N-methylglycine), allantoin (2,5-dioxo-4-imidazolidinyl)urea), Theobromine (3,7-dihydro-3,7-dimethyl-1H-purine-2,6-dione), theophylline (3,7-dihydro-1,3-dimethyl-1H-purine-2,6-dione), mesalamine (5-amino-2-hydroxybenzoic acid), enfenamic acid (2-[(2-phenylethyl)amino]benzoic acid), etofenamate (2-[[3-(trifluoromethyl)phenyl]-amino]benzoic acid 2-(2-hydroxyethoxyethyl ester), flufenamic acid (2-[[3-(trifluoromethyl)phenyl]amino]benzoic acid), meclofenamic acid (2-[(2,6-dichloro-3-methylphenyl)amino]benzoic acid), mefenamic acid (2-[(2,3-dimethylphenyl)-amino]benzoic acid), niflumic acid (2-[[3-(trifluoromethyl)phenyl]-amino]-3-pyridinecarboxylic acid), talniflumate (2-[[3-(trifluoromethyl)phenyl]amino]-3-pyridinecarboxylic acid 1,3-dihydro-3-oxo-1-isobenzofuranyl ester), terofenamate (2-[(2,6-dichloro-3-methylphenyl)-amino]benzoic acid ethoxymethyl ester), tolfenamic acid (2-[(3-chloro-2-methylphenyl)-amino]benzoic acid), S-adenosylmethionine ((3S)-5'-[(3-amino-3-carboxypropyl)methylsulfonio]-5'-deoxyadenosine inner salt), 3-amino-4-hydroxybutyric acid, amixetrine (1[2-(3-methylbutoxy)-2-phenylethyl]pyrrolidine), benzydamine (N,N-dimethyl-3-[[1-

(phenylmethyl)-1H-indazol-3-yl]oxy]-1-propanamine), difenpiramide (N-2-pyridinyl-[1,1'-biphenyl]-4-acetamide), ditazol (2,2'-[(4,5-diphenyl-2-oxazolyl)imino]-bisethanol), emorfazone (4-ethoxy-2-methyl-5-(4-morpholinyl)-3(2H)-pyridazinone), fepradinol ((+-)-[alpha]-[[(2-hydroxy-1, 1-dimethylethyl)-amino]methyl]benzeneniethanol), paranyline (4-(9H-fluoren-9-ylidenemethyl)benzene-carboximidamide), perisoxal ([alpha]-(5-phenyl-3-isoxazolyl)-1-piperidineethanol).

[0025] We have disclosed a simple method by which salts or ion-pair complexes of boswellic acids with hetero-atom bases (also referred to as 'organic base') can be made for their inclusion in dietary or pharmaceutical compositions that provide reduction in inflammation and other health benefits. These salts or ion pair complexes are made by simple acid-base reaction, as shown in eq, 1, between an organic acid (RCOOH) and an organic base (NR4R5R6).

RCOOH+NR4R5R6->RCOO<-+>NHR4R5R6 (equation 1)

[0026] The new composition according to this invention may be prepared by the following processes:

(a) By reacting boswellic acids or ketoboswellic acid or acetyl ketoboswellic acid with organic base.
(b) By in situ generation of organic free base and reacting with boswellic acids or ketoboswellic acid or acetyl ketoboswellic acid.

[0029] In the first process, stoichiometric equivalents of the reactants are mixed to obtain the desired salts or ion pair complexes. Preferably, the reaction is initiated by the slow addition of organic free base, particularly, glucosamine free base to an aqueous methanolic solution of boswellic acids. Boswellic acids (48% by HPLC) may be obtained by a known process of extraction from the gum resin of Boswellia serrata. Glucosamine free base may be liberated from glucosamine hydrochloride by anionic exchange resin treatment. The enriched 11-ketoboswellic acid or 3-O-acetyl-11-ketoboswellic acid (30%-100%) was obtained from the gum-resin of Boswellia serrata using an improved method described herein.

[0030] The salts or pair complexes prepared by this process may contain between 10 to 70% of boswellic acids. 5-40% of glucosamine.

[0031] According to the second process of preparing the compounds of this invention, stoichiometric quantities of boswellic acids, potassium hydroxide and organic base salts, particularly, glucosamine hydrochloride are reacted in aqueous methanol medium.

[0032] A further aspect of the present invention is a pharmaceutical formulation comprising a compound as described above in a pharmaceutically acceptable carrier (e.g., an aqueous or a non aqueous carrier).

[0033] A still further aspect of the present invention is a method of treating inflammatory diseases, comprising administering to a human or animal subject in need thereof a treatment effective amount (e.g., an amount effective to treat, slow the progression of, etc.) of a compound as described above.

[0034] Preferred embodiments relating to the improved process of enriching AKBA in

natural Boswellia extract and making the salts or ion pair complexes are presented in examples 1 to 6.

[0035] Though the following examples describe a specific embodiment of this invention, obvious equivalents and modifications known to persons skilled in the art are not excluded from the scope of the appended claims.

EXAMPLE 1

Isolation of 11-keto-[beta]-boswellic acid and 3-O-acetyl-11-keto-[beta]-boswellic acid

[0036] 1a). Single Pot Conversion of Boswellia Extract into AKBA Enriched Fraction:

[0037] To a solution of Boswellia serrata extract (85%, 10 kg,) in pyridine (5.4 L), in a 100 L all glass reactor equipped with a water-cooled reflux condenser, was added acetic anhydride (4.2 L) at room temperature and the mixture was subjected to heating at 60-65[deg.] C. under stirring. After 3 h, the mixture was cooled to ambient temperature and diluted with acetic acid (24 L) and acetic anhydride (24 L). The contents were cooled and treated slowly with chromium trioxide (6.4 kg) while maintaining the temperature under 40[deg.] C. The stirring was continued for another 2 h after the addition, and then the mixture was poured into ice water and the contents were mixed thoroughly. The solid was filtered, washed with water and dried in a vacuum oven to obtain a residue (14 kg). The HPLC analysis of the crude product showed complete conversion of boswellic acids B1, B4 and B6 to B2 (AKBA).

[0038] 1b). Isolation of 30-40% 3-O-acetyl-11-keto-[beta]-boswellic acid: The above crude reaction mixture (5 kg) was added to 4N hydrochloric acid (45 L) and heated at 60[deg.] C. for 4 h. The mixture was cooled to ambient temperature and filtered. The precipitate was washed with 4N HCl, followed by water and dried in a vacuum oven to obtain AKBA enriched to 30-40% (2.8 kg).

[0039] 1c). Isolation of 3-O-acetyl-11-keto-[beta]-boswellic acid: The above, enriched compound (500 g) was subjected to silica column chromatography using 5% to 30% ethyl acetate/hexane mixtures. The fractions were monitored by TLC and those containing AKBA (30%-60%) were combined and subjected crystallization in hexane and ethyl acetate mixtures to obtain fractions enriched up to 85% AKBA, Repeated crystallization in the same solvent system yielded AKBA enriched up to 100%.

[0040] 1d). Isolation of 11-keto-[beta]-bowellic acid: Alternatively, the crude mixture was dissolved in methanol and subjected to base treatment (8N KOH), The precipitate was separated by filtration and discarded. The mother liquor was acidified and the off-white precipitate was filtered, washed with water and dried under vacuum to obtain 30-40% ketoboswellic acid (KBA). The 11-keto-[beta]-boswellic acid mixture (200 g) obtained was adsorbed on 250 g of silica gel and subjected column chromatography over 500 g of silica. The column was eluted with hexane, 10% ethyl acetate/hexane, 20% ethyl acetate/hexane and 30% ethyl acetate/hexane mixtures. The fractions were monitored by TLC and the fractions containing 11-keto-p-boswellic acid were combined and evaporated and the residue was subjected to repeated crystallization from ethyl/hexane mixtures to obtain pure 11-keto-[beta]-boswellic acid (45 g, 95-100%. purity).

[0041] 1e). In a further variation of the process mentioned in example 1a, the addition of

acetic anhydride was eliminated. Instead the peracetylated mixture was diluted with 20 L of acetic acid and treated with CrO_3 (6.4 kg) in 100 L of acetic acid. The reaction mixture was quenched with excess water after 24 h, and processed as described in example 1a,

EXAMPLE 2

[0042] Glucosamine salt of boswellic acids; To a solution of boswellic acids (2 g, 48% boswellic acids) in 95% aqueous methanol (50 mL) was added glucosamine free base solution (8.6 mL, 0.4 g) and stirred at rt for 1 h. Then the solvent was evaporated under reduced pressure and dried to give glucosamine salt or ion pair complex of boswellic acids as gray colour powder (2.3 g), pH, 6,3, soluble in 90% aqueous methanol.

[0043] The analytical characteristics of the glucosamine salt or ion pair complex of boswellic acids thus obtained are, B1, 4.75%, B2, 2,10%, B3, 5.44%, B4, 14.91%, B5, 2.18%, B6, 8.66%; total: 38.04%; glucosamine (as free base) is 8.52%.

EXAMPLE 3

[0044] Glucosamine salt of boswellic acids (KCl): To a solution of boswellic acids (5 g, 48% boswellic acids) in methanol (125 mL) was added a solution of glucosamine hydrochloride (2 g) in water (8 mL) and stirred at rt for 15 min. Then potassium hydroxide (0.52 g, 20% aqueous solution, 2.6 mL) was charged slowly for 10 min and the solution was stirred at rt for 1 h. The solvent was evaporated under reduced pressure and dried to give glucosamine salt or ion pair complex of boswellic acids as gray colour powder (7.5 g), pH, 6.8, soluble in 90% aqueous methanol.

[0045] The analytical characteristics of the glucosamine salt or ion pair complex of boswellic acids thus obtained are, B1, 4.04%, B2, 1.86%, B3, 4.65%, B4, 12.73%, B5, 1.76%, B6, 7.34%; total: 32.38%; glucosamine (as free base) is 12.44%.

EXAMPLE 4

[0046] Glucosamine salt of boswellic acids (KCl): To a solution of boswellic acids (5 g, 48% boswellic acids) in methanol (125 mL) was added a solution of glucosamine hydrochloride (4g) in water (11 mL) and stirred at rt for 15 min. Then potassium hydroxide (0.52 g, 20% aqueous solution, 2.6 mL) was charged slowly for 10 min and the solution was stirred at rt for 1 h. The solvent was evaporated under reduced pressure and dried to give glucosamine salt or ion pair complex of boswellic acids as gray colour powder (9.6 g), pH, 6.6, soluble in 90% aqueous methanol.

[0047] The analytical characteristics of the glucosamine salt or ion pair complex of boswellic acids thus obtained are, B1, 3.14%, B2, 1.37%, B3, 3.36%, B4, 9.75%, B5, 0.93%, B6, 4.76%; total: 23.31%; glucosamine (as free base) is 27.16%.

EXAMPLE 5

[0048] Glucosamine salt of Acetyl ketoboswellic acid (KCl); To a solution of acetyl ketoboswellic acid (5 g, 30% AKBA) in methanol (100 mL) was added a solution of glucosamine hydrochloride (0.63 g) in water (3 mL) and stirred at rt for 15 min. Then potassium hydroxide (0.164 g, 20% aqueous solution, 0,82 mL) was charged slowly for 10

min and the solution was stirred at rt for 1 h. The solvent was evaporated under reduced pressure and dried to give glucosamine salt or ion pair complex of acetyl ketoboswellic acid as gray colour powder (4.8 g), pH, 6.7, soluble in 90% aqueous methanol.

[0049] The analytical characteristics of the glucosamine salt or ion pair complex of acetyl ketoboswellic acid thus obtained are, AKBA is 27.68%; glucosamine (as free base) is 5.42%.

EXAMPLE 6

[0050] Glucosamine salt of Acetyl ketoboswellic acid (KCl): To a solution of acetyl ketoboswellic acid (5 g, 30% AKBA) in methanol (100 mL) was added a solution of glucosamine hydrochloride (5 g) in water (15 mL) and stirred at rt for 15 min. Then potassium hydroxide (0.2 g, 20% aqueous solution, 1.0 mL) was charged slowly for 10 min and the solution was stirred at rt for 1 h. The solvent was evaporated under reduced pressure and dried to give glucosamine salt or ion complex of acetyl ketoboswellic acid as gray colour powder (9.3 g), pH, 5.6, soluble in 90% aqueous methanol.

[0051] The analytical characteristics of the glucosamine salt or ion pair complex of acetyl ketoboswellic acid thus obtained are, AKBA is 15.30%; glucosamine (as free base) is 39.44%.

Novel anti-cancer purely natural medicine (11-carbonyl-beta-acetyl boswellic acid) CN101724005

The invention relates to a novel broad spectrum purely natural medicine that can specifically inhibit phosphorylation of protein T-kappa-B to prevent nuclear transport of T-kappa-B so as to inhibit the growth of cancer cell, thereby treating cancer. The novel medicine is a natural extractive, and has the advantages of low production cost, high curative effect and less side effect.

COMPOSITIONS AND METHODS FOR TREATING AND PREVENTING INFLAMMATORY AND/OR DEGENERATIVE PROCESSES IN HUMANS AND OTHER ANIMALS WO2007011674

Disclosed are compositions useful for treating Alzheimer's disease, atherosclerosis, arteriosclerosis, osteoarthritis and other degenerative joint diseases, Huntington's chorea, Parkinson's disease, optic atrophy, retinitis pigmentosa, macular degeneration, muscular dystrophy, aging-associated degenerative processes, asthma, dermatitis, laminitis, pemphigoid, pemphigus, reactive airway disease (e.g., COPD, IAD), inflammatory bowel disease (e.g., Crohn's disease, ulcerative colitis) , multiple sclerosis, rheumatoid arthritis, periodontal disease, systemic lupus erythematosus, sarcoidosis, psoriasis, type I diabetes, ischemia-reperfusion injury, chronic inflammatory diseases, geriatric wasting, cancer cachexia, cachexia associated with chronic inflammation, sick feeling syndrome, and other inflammatory and/or degenerative diseases, disorders, conditions,; and processes in humans and other animals. In one embodiment, the compositions include at least 4 of the following: a

MMPl inhibitor, a MMP2 inhibitor, a MMP3 inhibitor, a MMP7 inhibitor, a MMP9 inhibitor, an ADAMTS-4 inhibitor, a MMP13 inhibitor, and a MMP14 inhibitor. In another embodiment, the compositions include a curcuminoid, a polymethoxylated flavone, a catechin, and a boswellic acid.

WATER SOLUBLE BOSWELLIC ACIDS, THEIR PREPARATION AND USE FOR TREATING IMFLAMMATORY CONDITION
WO02066491

A new composition which can be formed through a method comprising: (a) dissolving mixtures of boswellic acids in a water and alcohol solution to form a mixture; (b) adding one or more alkali salts to the mixture to form a salt solution; (c) filtering the solution to separate un-reacted alkali salt from a filtrate; and (d) recovering the soluble boswellic acid mixture from the filtrate. Additionally, the new composition can be formed by using super critical carbon dioxide. The new composition can be used to alleviate numerous inflammatory conditions, including, but not limited to, rheumatoid arthritis and osteoarthritis, colon cancer, prostate cancer and breast cancer, and a broad range of neurodegenerative conditions, such as Alzheimer's disease and Parkinson's disease. The composition can be administered parenterally, orally, or topically.

BACKGROUND OF THE INVENTION :

[0003] Boswellia serrata is a large, branching, deciduous tree, which grows abundantly in the dry, hilly parts of India. The gum resin exudate of this tree, known in the vernacular as"Salai guggal", has been used in the Ayurvedic system of medicine for the management of arthritis, respiratory diseases, and liver disorders.

The major use of Boswellia serrata in modern medicine is as an anti-arthritic and anti-inflammatory pharmacological agent.

[0004] The active principles found in the gum resin, specifically a combination of boswellic acids, have emerged as effective non-steroidal anti-inflammatory compounds (NSAID's) with broad biological activities and also a low ulcerogenic index. Compared experimentally with the anti-inflammatory drug phenylbutazone, boswellic acids did not produce injury to the gastrointestinal mucosa. The most popular NSAID, aspirin, although much better tolerated than its parent compound salicylates, still has serious side effects, e. g. gastrointestinal irritation and bleeding which limit its long-term use. In addition, aspirin is contraindicated in patients who have experienced asthma, urticaria (in general allergic reactions), and should be administered with caution in children and teenagers due to the risk of Reye syndrome.

[00005] One way in which to explain how boswellic acids function as NSAIDs in the treatment of inflammatory conditions is to compare these natural compounds to aspirin without the typical gastrointestinal irritation. Similar to aspirin, boswellic acids inhibit the pathway leading from arachidonic acid (a derivative of our body's phospholipids) to its metabolic derivatives called leukotrienes and prostaglandins.

An excess of leukotrienes and prostaglandins may be responsible, directly or indirectly, for the classic signs of inflammation ; redness (due to dilated vessels), swelling (due to the blood

vessels leaking out), pain (due to activation of the pain receptors) and increased heat over the affected part of the body. The specific biochemical mechanism of boswellic acids differs from that of aspirin, however both compounds result in the diminishment of the mediators of inflammation, leukotrienes or prostaglandins, and the inflammation is subdued.

[0006] Studies designed to determine the anti-inflammatory mechanism of boswellic acids indicate that their primary mode of action involves the inhibition of 5lipoxygenase, the key enzyme responsible in the formation of leukotrienes.

Additionally, boswellic acids do not appear to impair the peroxidation of arachidonic acid by iron and ascorbate. These results suggest that boswellic acids are safe, specific, non-redox inhibitors of leukotriene synthesis that operate through a well defined mechanism.

[0007] One of the most interesting properties of boswellic acids is their anticomplementary activity. In in vitro experiments boswellic acids prevented a wellknown inflammatory"chain-reaction"involving several protein compounds collectively known as"complement". This is due to the inhibition of an enzyme that activates one of the components of complement, C3 convertase. The domino effect of the complement in the course of rheumatoid arthritis (or a similar chronic inflammatory process) leads to a subsequent elevation of the enzymes (e. g. cathepsins, glucuronidase and human leukocyte elastase (HLE)) causing excessive catabolism (wasting) of the joint-forming glycoproteins and glycosaminoglycans.

This tissue destructive process leads to continuously worsening joint disfigurement, pain, and limited mobility. As a consequence of complement-mediated tissue destruction, there is an increased release of markers (metabolites) of the connective tissue, e. g. hydroxyproline, hexosamine and uronic acid. Boswellic acids have been found to decrease the levels of tissue destructive enzymes and also of the levels of urinary hydroxyproline, hexosamine and uronic acid in the acute and chronic phases of experimental arthritis.

[0008] There are four major b-boswellic acids involved in the inhibition of 5lipoxygenase and related anti-inflammatory events. These are: b-Boswellic Acid (BBA), Acetyl-b-Boswellic Acid (ABBA), 11-keto-b-Boswellic Acid (KBBA), Acetyl-11- keto-b-Boswellic (AKBBA), listed here in the order of increasing anti-inflammatory properties.

[0009] Boswellic acids have been found to be effective in alleviation of numerous inflammatory conditions, including, rheumatoid arthritis and osteoarthritis.

[0010] A standardized extract of boswellic acids (200 mg tid) was evaluated in a four week double blind, cross-over trial in 30 patients suffering from rheumatoid arthritis. The mean arthritic score (sum of symptoms) and the biochemical index of inflammation in the group receiving boswellic acids came down significantly after the treatment. However, when the placebo was substituted (crossover), the subjective and objective indices of arthritis rose again. (See Majeed, M, Badmaev, V, Gopinathan, S, Rajendran, R, Norton, T. Boswellin The Anti-inflammatory Phytonutrient. Nutriscience Publishers, Inc. Piscataway, N. J. 1996. pp. 78.) [0011] In another 20 patient, double blind, crossover study a boswellia gum resin extract (200 mg tid) combined in an herbomineral formula was evaluated in the treatment of rheumatoid arthritis and separately in osteoarthritis. Active and placebo treatments were given for a period of three months. After a washout period of two weeks, the regimens were crossed-over. The three month active therapy resulted in a significant decrease in severity of pain, morning stiffness, improved joint mobility score, grip strength score and the overall

disability score compared to the placebo group. The biochemical index of inflammation was also significantly improved due to the treatment. (See Kulkarni, RR, Patki, PS, Jog, VP, Patwardhan, G & B. Efficacy Of An Ayurvedic Formulation In Rheumatoid Arthritis: A Double-Blind, Placebo Controlled, Cross-Over Study. Ind J Pharmacol. 1992 ; 24: 98-101.) [0012] Ulcerative colitis is an example of a chronic inflammatory process in the bowel, which may be caused and/or aggravated by excessive leukotriene production.

Effects of Boswellia serrata gum resin (350 mg thrice daily for 6 weeks) vs. the NSAID sulfasalazine was studied in patients with ulcerative colitis. The tested parameters, including stool properties, istolopathology of rectal biopsies, and blood biochemistry improved after treatment with the gum resin. As a result of the treatment, 82% of patients went into remission, as compared to a 75% remission rate obtained with sulfasalazine. (See Gupta, 1, Parihar, A, Malhotra, P, Singh, GB, Ludtke, R, Safayhi, H, Ammon, HP. Effects of Boswellia serrata gum resin in patients with ulcerative colitis. Eur J Med Res. 1997 Jan; 2 (1) : 37-43.) [0013] Boswellic acids were also tested in the management of asthma, since a new generation of anti-asthmatic drugs is based on the premise of being leukotriene inhibitors. In a double blind, placebo-controlled study 40 patients with a several years'history of bronchial asthma were treated with 300 mg tid of boswellia gum resin for a period of six weeks. Seventy percent of the patients responded to the treatment as evidenced by a reduction in dyspnea, ronchi, and number of attacks, improvement in lung tests and blood biochemistry. Only 27% of the patients receiving placebo showed clinical improvement. (See Gupta, 1, Gupta, V, Parihar, A, Gupta, S, Ludtke, R, Safayhi, H, Ammon, HP. Effects Of Boswellia Serrata Gum Resin In Patients With Bronchial Asthma: Results Of A Double-Blind, Placebo Controlled, 6-Week Clinical Study. Eur J Med Res. 1998; 3: 511-514.) [0014] Finally, boswellic acids also have use in the veterinary field. Several veterinarians found success using boswellic acids in the treatment of chronic inflammatory conditions in horses such as stifle problems, sore backs, bowed tendons and bone spurs. In addition, a preliminary study of boswellic acids in aging pet dogs and cats showed beneficial effects in alleviating arthritic conditions. (See Majeed, M, Badmaev, V, Gopinathan, S, Rajendran, R, Norton, T. Boswellin The Anti-inflammatory Phytonutrient. Nutriscience Publishers, Inc. Piscataway, N. J. 1996. pp. 78.) [0015] Sabinsa Corporation manufactures different grades of Boswellic acids known under the trademark Boswellin@, two of these are Boswellin (standardized for 25% boswellic acids) and Boswellin Forte (standardized for 40% boswellic acids).

More specifically, the minimum amount of each boswellic acid that must be present in these grades is:
Boswellin Forte Boswellin BBA min. 11.0% 6.0% ABBA min. 8.0% 4.0% KBBA min. 7.0% 3.0% AKBBA min. 4.0% 1.5% [0016] Please note that, of course, every acid may not be present in its minimum amount as the required total percentages of boswellic acids (40% and 25%) would not be met if this occurred.

[0017] Such non-water soluble mixtures of BBA, ABBA, KBBA, and AKBBA boswellic acids can be used as a pharmaceutical. Since the ancient times, frankincense has been used in the preparation of cosmetics and perfumes, and also as a fixative in perfumes, soaps, creams, lotions and detergents. Frankincense is a common name for Boswellia gum resin, and Boswellia gum resin is a raw source from which boswellic acids are extracted. The stabilizing effect of frankincense in cosmetic preparations is directly related to the biological properties of boswellic acids. The anti-inflammatory properties of boswellic acids can also yield an interesting applications for topical and cosmetic use of the extract of Boswellia serrata. Boswellia cream for the management of inflammatory conditions has been available for

several years in the US market. Its therapeutic composition includes, roughly 5 wt. % boswellic acids, 0.025 wt. % capsaicin, an extract of Capsicum annum fruits, and 10 wt. % methyl salicylate.

[0018] However, a problem associated with these formulations is that they are not soluble in water. Therefore, there is a great need in the field for water soluble boswellic acid mixtures and salts.

SUMMARY OF THE INVENTION :

[0019] The new water-soluble composition can be formed through a method comprising the steps of: (a) dissolving mixtures of boswellic acids in a water and alcohol solution to form a mixture; (b) adding one or more alkali salts to the mixture to form a salt solution; (c) filtering the solution to separate un-reacted alkali salt from a filtrate; and (d) recovering the soluble boswellic acid mixture from the filtrate.

[0020] Additionally, the new composition can be formed by using super critical carbon dioxide. The new composition can be used to alleviate numerous inflammatory conditions, including, but not limited to, rheumatoid arthritis and osteoarthritis, colon cancer, prostate cancer and breast cancer, and a broad range of neurodegenerative conditions, such as Alzheimer's disease and Parkinson's disease. It can also be used in the prevention and treatment of cardiovascular conditions such as stroke, coronary artery disease or thrombophlebitis. The composition can be administered parenterally, orally, or topically.

DETAILED DISCLOSURE :

[0021] As stated above, the composition can be formed by (a) dissolving mixtures of boswellic acids in a water and alcohol solution to form a mixture, (b) adding one or more alkali salts to the mixture to form a salt solution, (c) filtering the salt solution to separate un-reacted alkali salt from a filtrate, and (d) recovering the soluble boswellic acid mixture from the filtrate.

[0022] Preferably, though, the method involves (a) dissolving boswellin forte in a water and 5% methanol solution to form a mixture, (b) adding one or more potassium salts to the mixture to form a salt solution and then stirring the salt solution at room temperature, (c) filtering the solution with a nutsche filter to separate un-reacted potassium salts from a filtrate, (d) recovering the soluble boswellic acid mixture from the filtrate, (e) drying the filtrate with a vacuum drier at a temperature of no more than 50 C, and (f) powdering the filtrate.

[0023] More preferably, the filtrate can be dried through concentrating the filtrate free of the solvent to obtain a solid, wherein this step also further comprises dissolving the obtained solid in water to obtain a secondary mixture, charcoalizing the secondary mixture, filtering the charcoalized secondary mixture and spray-drying the resulting product.

[0024] Additionally, it is also possible to use the super critical carbon dioxide method of obtaining the boswellic acid mixture. Such a process would comprise the steps of (a) dissolving a mixture of boswellic acids, preferably boswellin forte, in a water and alcohol solution to form a mixture, (b) adding one or more alkali salts to the mixture to form a salt solution, (c) treating the salt solution with supercritical carbon dioxide, (d) allowing the

supercritical carbon dioxide to evaporate to leave an oleoresin, (e) passing an alcohol solution of the oleoresin through a column packed with an anion exchange resin, and (f) collecting the soluble boswellic acid mixture from the eluent. Furthermore, it is preferred that the treatment of the salt solution take place for at least 10 hours and that the alcohol solution be 5% methanol and 95% water. Suitable resins include Amberjet 4200 (cl), Amberlite IRA 410, Amberlite IRA 900, Dowex 1x2-100, Dowex 22cl, Dowex Marathon A2, Dowex MSA 1, Dowex 550 A, all of which are Rohm-Haas or Dow products. The oleoresin is preferably passed through the resin at a rate of 20-50 L per hour.

[0025] The processes described above produce a water soluble composition, preferably comprising at least 12.5% by weight of the alkali salt of BBA, at least 9.57% by weight of the alkali salt of ABBA, at least 8.15% by weight of the alkali salt of KBBA, and at least 3.72% by weight of the alkali salt of AKBBA, the remainder of the water soluble composition being organic acids or matter, and the alkali salts thereof. This composition of boswellic acids is suitable for the treatment of many inflammatory conditions including rheumatoid arthritis and osteoarthritis, colon cancer, prostate cancer and breast cancer, and a broad range of neurodegenerative conditions, such as Alzheimer's disease and Parkinson's disease. It can also be used in the prevention and treatment of cardiovascular conditions such as stroke, coronary artery disease or thrombophlebitis.

[0026] The composition may be administered to the subject orally, parenterally, or topically. For preparing pharmaceutical compositions containing compounds of the invention, inert, pharmaceutical acceptable carriers are used. The pharmaceutical carrier can be either solid or liquid. Solid form preparations include, for example, powders, tablets, dispersible granules, capsules, creams, and cachets.

[0027] A solid carrier can be one or more substances which can also act as diluents, flavoring agents, solubilizers, lubricants, suspending agents, binders, or tablet disintegrating agents; it can also be an encapsulating material. In powders, the carrier is generally a finely divided solid which is in a mixture with the finely divided active component. In tablets, the active compound is mixed with the carrier having the necessary binding properties in suitable proportions and compacted in the shape and size desired.

[0028] Powders and tablets preferably contain between about 5% to about 70% by weight of the active ingredient. Suitable carriers include, for example, magnesium carbonate, magnesium stearate, talc, lactose, sugar, pectin, dextrin, starch, tragacanth, methyl cellulose, sodium carboxymethyl cellulose, a low-melting wax, cocoa butter and the like. The pharmaceutical compositions can include the formulation of the active compound with encapsulating material as a carrier providing a capsule in which the active component (with or without other carriers) is surrounded by a carrier, which is thus in association with it. In a similar manner, cachets are also included. Tablets, powders, cachets, and capsules can be used as solid dosage forms suitable for oral administration.

[0029] Liquid pharmaceutical compositions include, for example, solutions suitable for oral or parenteral administration, or suspensions, and emulsions suitable for oral administration. Sterile water solutions of the active component or sterile solutions of the active component in solvents comprising water, ethanol, or propylene glycol are examples of liquid compositions suitable for parenteral administration.

[0030] Sterile solutions can be prepared by dissolving the active component in the desired

solvent system, and then passing the resulting solution through a membrane filter to sterilize it or, alternatively, by dissolving the sterile compound in a previously sterilized solvent under sterile conditions.

[0031] Aqueous solutions for oral administration can be prepared by dissolving the active compound in water or other appropriate solvents and adding suitable flavorants, coloring agents, stabilizers, and thickening agents as desired. Aqueous suspensions for oral use can be made by dispersing the finely divided active component in water together with a viscous material such as natural or synthetic gums, resins, methyl cellulose, sodium carboxymethyl cellulose, and other suspending agents known to the pharmaceutical formulation art. Preferably, the pharmaceutical composition is in unit dosage form. In such form, the composition is divided into unit doses containing appropriate quantities of the boswellic acid mixtures. The unit dosage form can be a-packaged preparation, the package containing discrete quantities of the preparation, for example, packeted tablets, capsules, and powders in vials or ampules. The unit dosage form can also be a capsule, cachet, or tablet itself, or it can be the appropriate number of any of these packaged forms.

[0032] The specific dosages employed, however, can be varied depending upon the requirements of the patient, and the severity of the condition being treated. The preferred dosage of the alkali boswellic acid salts given is 50-800 mg per day. More preferably, the dosage is 100-600 mg per day. Even more preferred is a dosage of 150-300 mg per day. Most preferred is a dosage of about 200 mg per day, which is preferably administered by doses of 200 mg of the boswellic acid salt composition 3 times a day. The determination of optimum dosages for a particular situation is within the skill of the art.

BRIEF DESCRIPTION OF DRAWINGS :

[0033] Figure 1: This diagram reflects the boswellic acid composition of the Potassium Boswellin used in Example 1 and the composition of the Boswellin forte used to create the Potassium Boswellin used in Example 1.

[0034] Figure 2: This diagram reflects the presence of the four boswellic acids in the serum of Individual A at 5,10,20,40,80, and 160 minutes.

[0035] Figure 3: This diagram reflects the presence of the four boswellic acids in the serum of Individual B at 5,10,20,40,80, and 160 minutes [0036] Figure 4: This diagram is a graph charting the serum levels of the various four boswellic acids in the serum of Individual A at the 5,10,20,40,80, and 160 minute intervals.

[0037] Figure 5: This diagram is a graph charting the serum levels of the various four boswellic acids in the serum of Individual B at the 5,10,20,40,80, and 160 minute intervals

EXAMPLES
Example 1:

An initial batch of 1 kg Potassium Boswellin was prepared using 40% Boswellin Forte material (see Figure 1).

Potassium Boswellin and Boswellin 40% were then orally administered to two human volunteers who had spent the previous 16 hours fasting. 1 gram of Potassium Boswellin was

given to Individual A and 1 gram of Boswellin 40% was given to Individual B. Both the Potassium Boswellin and the Boswellin 40% were suspended in 35 mi of milk and given to the subjects to consume. 5 ml of blood was withdrawn from the volunteers at intervals of 5,10,20,40,80, and 160 minutes.

The blood samples were collected into sterile centrifuge tubes and left for 120 minutes to retract the clot. The samples were then centrifuged to separate the serum. The serum was transferred to sterile 2 mi vials and stored at 0 C-4 C overnight.

The serum samples were then brought to room temperature. 1 ml of the serum was placed into a 10 ml stoppered volumetric flask and 1 ml of 3 N HCI was added to it. This mixture was then sonicated for 20 minutes to free the boswellic acid. The volume of the mixture was then brought to 10 ml with methanol and the resulting solution was sonicated for 10 minutes to extract the boswellic acids and to precipitate the serum proteins. This prepared sample was then transferred into capped centrifuge tubes and centrifuged at 4,000 rpm for 10 minutes. The serum proteins were precipitated as sediment and the clear supernatant was filtered through No. 1 filter paper.

The clear supernatants were then subjected to a HPLC assay, the results of which are shown in Figures 2-5. As can be plainly seen, the serum with Potassium Boswellin shows that a greater amount of boswellic acids have been absorbed by the subject's bloodstream, thereby demonstrating the efficacy of the present invention.

EXTRACT OF OLIBANUM (FRANKINCENSE GUM) IN THE FORM OF NANOPARTICLES, AND USE THEREOF
WO2006128634

[Machine translation]

The invention relates to a novel and improved nanoparticulate form of a frankincense gum extract, containing, inter alia, Boswellic acids and/or their derivatives. The nanoparticles have advantageous properties for use in the treatment of inflammatory diseases. Surprisingly, these advantages are obtained both in topical application and oral administration. When used in topical formulations, the nanoparticles are better absorbed by the skin than are known, tacky extracts, and they are thus suitable for the treatment, for example, of neurodermatitis and/or actinic keratosis and/or basal cell carcinoma and/or epithlioma and/or squamous cell carcinoma of the skin. For example, in soft gel capsules that dissolve in the small intestine, the nanoparticles have much improved bioavailability, which also considerably improves oral administration for treatment of inflammatory conditions. Finally, the nanoparticles can also be used for coating stents and implants.

0001] extract from olibanum (incense) in the form of nanoparticles and

[0002] using the same

[0003] The invention relates to a new and improved nanoparticulate form of a Olibanumextraktes (incense extract) containing, among other boswellic acids and / or derivatives thereof.

The dissolved Olibanumextrakt embedded in spherical particles having a three-dimensional size in the nanometer (nm) range.

The so-called nanoparticles have advantageous properties in terms of a use for treating inflammatory diseases.
Surprisingly these advantages are obtained both for a topical, an oral administration as well as a surface coating of implants.

The nanoparticles are absorbed better when used in topical formulations of the skin known as sticky extracts and thus suitable for the treatment of, for example, atopic dermatitis and / or actinic keratosis and / or basal cell carcinoma and / or squamous and / or squamous cell carcinoma of the skin.

For example, in enteric softgels show the olibanum nanoparticles significantly improved bioavailability, which also improves oral use in the treatment of inflammatory conditions significantly.

Finally, Olibanum nanoparticles can also be used for coating of implants (vessel joint, bone, tooth) and surgical sutures.

[0004] state of the art early in oriental folk medicine is the use of incense, primarily in India and in the Near East, for the treatment of various diseases, especially inflammation and rheumatic joint diseases known.
Even in recent times several medical applications have been found for incense or Olibanumextrakte and especially for boswellic acids and their derivatives.

Inflammatory responses are measures of the organism, which serve to remove the damaging tissue damages by causing foreign bodies or the damaged part of the tissue repair and replace tissue.

Hence, inflammation is a physiological process.

However, there are a number of situations in which functions of organs are disturbed by inflammatory processes, especially when they are shooting or chronic.

Inflammation is triggered by the release of so-called biochemical mediators of inflammation.

There are two types of different inflammatory mediators that are involved in the formation and maintaining inflammatory prostaglandins and leukotrienes.

The current therapy of inflammation occurs with drugs that are predominantly in a position called the arachidonic acid cascade, namely to block the part of the leads to the formation of Prostaglandiene.

The drugs used are among the steroidal and non-steroidal anti-inflammatory drugs.

The anti-inflammatory effects of these drugs is associated with significant side effects.

[0005] The anti-inflammatory effect of boswellic acids has been repeatedly published (Safayhi, H., et.

AI, Planta Medica 63, 487-493, 1997. J. Pharmacol. And Exp Ther, 261, 1143-46, 1992). Sashwati et al investigated by screening the human genome, the genetic basis of the anti-inflammatory effect of Boswellia in microvascular endothelial cells and found an inhibition of 5 -lipoxygenase, a key enzyme in the biosynthesis of leukotrienes. The research revealed that 3-O-acetyl-11-keto-boswellic acid is the most potent as 5-lipoxygenase inhibitor among the boswellic acids.

In addition, the boswellic acids prevented the TNF-alpha-induced expression of metalloproteinases and of mediators of apoptosis.

It was also the expression of VCAM-1 and ICAM-1 suppresses Olibanumextrakte.

This research showed that Olibanumextrakt by influencing the mechanisms of inflammation Signalmecha anti-inflammatory effect (Sashwati, R., et al, DNA AND CELL BIOLOGY:. VoI 24, Number 4, 2005).

[0010] EP 552 657 A1 discloses that pure boswellic acid, the physiologically compatible salts borrowed, derivatives thereof and salts of derivatives or a herbal preparation containing boswellic acid can fight inflammation, caused by increased leukotriene formation.

It is suggested in the treatment of inflammatory joint diseases, epidermal lesions, allergic and chronic asthma, Endoxinschock, inflammatory bowel disease and chronic hepatitis with these compounds.

[0011] WO 90/01937 reports that a-and ss-Boswelliaacetat Boswelliaacetat and its analogs inhibit topoisomerase I and topoisomerase II.

Therefore, this document proposes to use the compounds for the treatment of various cancers.

[0012] WO 97/07796 uses boswellic acid, a physiologically acceptable salt, derivative, a salt of said derivative or a boswellic acid-containing herbal preparation for the prophylaxis and / or the control of diseases that are caused by increased Leukozytenelastaseoder Piasminaktivität.

Therefore, this document proposes to use the compounds in the treatment of diseases such as emphysema, acute respiratory distress syndrome, adult respiratory distress syndrome, cystic fibrosis, chronic bronchitis, glomerulonephritis and rheumatoid arthritis, and also to inhibit the growth and metastasis of many cancers.

[0013] WO 02/15916 discloses Dihydroboswelliasäuren, physiologically acceptable salts thereof, and hydrogenated extracts of boswellia.

It is proposed to use these compounds for prophylactic and / or therapeutic treatment of adverse physical and psychological conditions, especially of somatic, psychosomatic and mental disorders such as inflammatory processes, which are caused by increased leukotriene formation, Leukozytenelastaseoder Piasminaktivität.
The above diseases are, for example inflammatory joint diseases, epidermal lesions, allergic and chronic asthma, endotoxin, inflammatory bowel disease, chronic hepatitis, pulmonary emphysema, acute respiratory distress syndrome, shock lung, cystic fibrosis, chronic bronchitis, glomerulonephritis and rheumatoid arthritis as well as specific tumors and tumor

metastases.

[0015] DE 101 21 252 A1 describes the treatment of acne, a hormone-induced inflammatory skin disease, the use of lipoxygenase inhibitors alone or in combination with other lipoxygenase inhibitors or with other anti-acne agents in a suitable pharmaceutical composition, in particular by oral and / or locally-applied topically.

[0016] In the publication U.S. 2004/0166178 A1 discloses the use of 3-O-acetyl-11-keto-boswellic acid is described in a formulation for topical application for relaxation of the skin and for the treatment of facial wrinkles.

[0017] In summary it can be said that incense and Olibanumextrakte is known as a traditional natural remedies or medicines to treat various physical and mental conditions.

Because of the versatility of the applicability of the good effect coupled with reduced side effects, there is a great need to provide Olibanumextrakte in an improved form, and this improved formulation for as many applications, such as topical and oral administration as well as for coating implants and should be suitable for surgical sutures.
To skin diseases

[0018] In the case of eczema (including atopic dermatitis, eczema atopic, eczema diffusa, eczema disseminated, eczema constitutionalis, endogenous eczema Besnier-prurigo) is a chronic or chronically relapsing, in their morphological aspect and overall process quite different types of inflammatory skin disease which is accompanied by severe itching.

The eczema is hereditary and often occurs together with other atopic diseases such as allergic rhinitis, allergic conjunctivitis and allergic bronchial asthma on.

Biochemically is neurodermatitis a fault in the humoral and cellular immunity, the infection is associated with a high activity of the skin.

The current treatment of these inflammatory skin disorder is often performed by means of the external application of glucocorticoids in the form of ointments or creams.

This inflammatory activity is indeed reduced, but the treatment is associated with significant side effects with cortisone.

[0019] The incidence of "light skin cancer," meaning Kanzerosen as actinic keratoses, basal cell carcinomas, squamous cell carcinomas and squamous fall, takes explosively in the temperate latitudes.

The "light skin cancer" is ten times more common than melanoma, the skin cancer known as black. Every seven years, double the number of cases. One of the causes is sun exposure and skin damage caused by UV radiation and the frequent use of tanning beds.

The actinic keratoses are now no longer classified as a precancerous condition, but as an early cancer.
Approximately every second German has over 60 years due to many years of UV light exposure to actinic keratoses.

Most actinic keratoses persist as long Carinoma in situ, whereas 20% show spontaneous remission or develop into invasive carcinomas spinozelläre.

There are now following therapeutic options: 1 Surgical removal (eg As excision, curettage, cryosurgery), with mostly 100% remissions are obtained. However, there remain scars and surrounding skin areas that were indeed exposed to the same UV exposure, remain untreated.

2 Chemotherapies (eg As 5-fluorouracil or podophyllin) reach up to 85% remissions and can be applied areally.
However, they must be carried out over weeks, are painful and can leave scars and pigmentation.

[0021] 3 Photodynamic Therapy: After photosensitization by 5 - aminolevulinic acid cream light to destroy the tumor cells. Remissions and good cosmetic results can be achieved. For this, the procedure is painful phototoxic reactions are possible.

[0022] 4 Immunomodulators: For example, with imiquimod or diclofenac as a cream or gel remissions in up to 80% of cases can be achieved and the actinic keratoses can be removed without leaving any scars. The treatment is repeated, but it takes at least 12 weeks and requires a high level of patient compliance.

[0023] In the above-mentioned skin diseases is a high inflammatory activity with activation of inflammatory mediators, such as prostaglandins and the 5-lipoxygenase. In the skin lesions can be as in the basal cell carcinoma, squamous and squamous skin cells degenerate prove. By antiphlogistic drugs that interfere with the prostaglandin, such as diclofenac, remission can be achieved, but these drugs are known side effects.

Boswellic acids that occur from Olibanumharz in the extract have anti-inflammatory, antiproliferative and cytostatic effects.

The anti-inflammatory action based on inhibition of 5-lipoxygenase, in an essential enzyme for the synthesis of leukotrienes (see, for B. Safayhi et al., Mol Pharm 47, 1212-1216, 1995. Sailer et al, Arch Pharm 329, 54-56, 1996) and the inhibition of leukocyte elastase, as described in EP 854 709th

Furthermore, boswellic acids have a cytostatic effect.

It is reported more recently, of chemopreventive and therapeutic effects of acetyl-keto-boswellic acids in the treatment of various cancers.

This seems to be the inhibition of topoisomerase-1, alpha TopoisomeraseII and induction of apoptosis through activation of caspase-3 and -8 play a key role by boswellic acids (Jian-Jun Liu, et. AI., Intern. J. of Molecular Medicine 10:. 501-505, 2002, Shao et al, Planta Medica 64, 328-331, 1998). These effects appear to be suitable as boswellic acids for treatment of tumors, as described in EP 871 437

[0024] Treatment of inflammatory and malignant skin diseases Olibanumextrakten and / or boswellic acids and derivatives thereof is generally known in the prior art. However, arises with the topical use of the extracts, the problem that they are typically sticky and thus have the property not to be absorbed by the skin and therefore can not operate in the deeper skin

layers.

[0025] There is therefore a need, extracts of frankincense in a form more available for topical applications to provide that optimally penetrate into the skin to the skin in order to be pharmacologically active either topically or systemically.

Vascular disease

[0026] Atherosclerosis is the cause of heart attacks, strokes and peripheral vascular occlusive disease of the extremities and is a chronic inflammatory fibroproliferative disease of the arterial wall, which is associated with an impaired immune response.

Inflammatory processes, the inner wall of arteries, the intima, disturbed in their integrity and particularly loaded vessel sections, for example on vessel bifurcations occur injuries and lacerations of the intima.
Inflammatory cells in the lesions themselves are deposited as monocytes, macrophages, dendritic cells, mast cells and neutrophils.
Mast cells are transformed by taking up oxidized low-density lipoproteins (LDL) in foam cells and to form the "lipid core" of the so-called plaques, inflammatory ulcers in the vessel wall.
Reduce by chronic inflammation with activation of metalloproteinases, enzymes, connective tissue and collagen, the connective tissue sheath layer of the plaques is injured and the lipid-containing core of the plaques come in contact with the coagulation system of the blood, it forms very quickly Gerinnungspfropf which closes the vessel .
This process occurs in a coronary artery that supplied by the vascular portion of the heart muscle dies from lack of oxygen. A heart attack is the result. Atherosclerotic processes in the brain that trigger strokes.

[0027] The inflammation of the vessel wall are activated by inflammatory mediators, such as prostaglandins and leukotrienes released. Leukotrienes are formed via the 5-lipoxygenase cascade of inflammation. It has been shown that 5-lipoxygenase expressed in increasing concentrations at various stages of atherosclerosis in the arterial wall (Spanbroek, R.; PNAS, Vol 100, No. 3, 1238-1243, 2003). The authors proposed a new model of atherosclerosis in which mediated by the 5-lipoxygenase inflammatory activity in the vessel wall is the cause of the progression of atherosclerotic lesions.

[0028] Inflammatory markers in the blood of patients with atherosclerosis have elevated levels of C-reactive protein, interleukin 116, tumor necrosis factor alpha (TNF-alpha), a reduced antioxidant capacity, increased lipid peroxidation and increased homocysteine ?? concentrations.
In the treatment of patients with coronary heart disease with statins, that lipid-lowering drugs, in addition to a reduction of the anti-inflammatory effects LDLCholesterinspiegels a reduction was observed with the C-reactive protein concentration.
This effect was accompanied by a significant reduction in the risk of sudden cardiac death and stroke and the significant decrease in the lipid core forming lipoproteins (LDL) and inflammatory activity has been attributed.

[0029] The treatment of atherosclerosis, coronary heart disease is classically with medications such as statins, beta-blockers, ACE inhibitors, and acetylsalicylic acid, which all require considerable side effects.

[0030] Olibanumextrakte point, as explained in detail above, anti-inflammatory and antiproliferative effects on cytostatic, which is also known from the prior art.
These effects make the extracts useful in the treatment of inflammatory processes and vascular proliferative diseases, arteriosclerosis, and side effects of conventional drugs can be avoided.

[0031] However, there is a need, extracts of frankincense in a more bioavailable form for oral administration to provide. implants

[0032] As an example, stents: percutaneous transluminal angioplasty (PTA) of blood vessels, especially the coronary artery angioplasty (PTCA) is a very common way to eliminate strictures or stenoses, which obstruct the blood supply of human organs.

Endovascular stents are used as a scaffold in order to prevent a sudden arterial occlusion in the angioplasty.
Stents may also reduce the restenosis rates as compared with a conventional balloon angioplasty.

Restenosis after stent implantation, however, provide at rates 20-30% remains a Problern in coronary arteries dar.
Restenosis is the result of massive blood vessel damage with induction of inflammation and endothelial cell proliferation stimuli for the use of a stent.

Rates of restenosis following stent implantation are also from the stent design and material dependent.
From WO 90/13332 and WO 91/12779 stent has become known, which are coated with anti-inflammatory drugs gerinnungsund to reduce restenosis rates.

The erfolgversprechensten drugs that may reduce restenosis rates effective agents include rapamycin (sirolimus (R)) and paclitacel (Taxol (R)).

[0033] Rapamycin is a macrolide antibiotic which has both anti-inflammatory and antiproliferative properties.
It prevents smooth muscle cell proliferation and reduces the inflammatory response induced by stent implantation by inhibition of proinflammatory cytokines (Suzuki et al., Circulation 104 (10), 1188-1193, 2001).

[0034] One of the disadvantages of the currently discussed eluting stents is the delayed epithelialization of the stent inner surface, so that the antithrombotic therapy to prevent must be in-stent thrombosis significantly prolonged time. There is thus a need to provide an alternative means which is suitable to coat stents.

[0035] The object of the invention is therefore to provide Olibanumextrakt in a form which can be used in pharmaceutical and / or cosmetic and / or for the coating of the implant surface, and thereby improves the corresponding means.

This improvement should be guaranteed for different application forms such as topical and oral administration.
In the area of ??topical application is to be achieved in that the or can be absorbed by the skin, the active compounds of the Olibanumextrakts better.

In the oral administration of Olibanumextrakt the active ingredient to be more bioavailable.

In the application for the coating of surfaces of implant treatment of vascular disease is to be provided for example by means of a stent in the form Olibanumextrakt within which makes the coating of the stent with the active compound or compounds of Olibanumextrakt possible.

[0036] These objects are achieved by the subject matter of the claims.

[0037] Surprisingly it was found that Olibanumextrakte in nanoparticulate form are perfectly suitable, on the one hand in formulations for topical administration and the other in formulations for oral administration significantly improve their properties.

When applied topically, the active ingredient (or active ingredients) is much better absorbed by the skin than is the case with the use of conventional extracts.

For oral administration, preferably in enteric soft gel capsules, the bioavailability of the active substance (or substances) is considerably improved.

It was also found that Olibanumextrakte in nanoparticulate form are an excellent way to coat implants such as stents or other (port system, joint prostheses, Herzschrittmaeher, dental pins, screws, plates, Kirschner wires).

Also has been found out that surgical sutures (eg As polyethylene), and indwelling indwelling, vascular catheters can be coated with Olibanumextrakt-Nanopartikenl.

The devices mentioned can cause foreign body reactions in the human body, which may be associated with inflammation and even with Granulombildungen.

Surprisingly, it has been found that the coating of the device with OlibanumNanopartikeln prevent foreign body reaction or can be counteracted.

Ultimately, it has proved advantageous to add as additive to Olibanumextrakt storage solutions for biological materials in nanoparticulate form.

These can be used in transport solutions for organs, as used for example in organ transplantation.
[0038] Olibanumextrakt can be obtained by, for example, ethanol, methanol, ether or chloroform extraction extraction of resin of olibanum. Preferably, such extracts are lipophilic.

[0039] According to a preferred embodiment of the invention the Olibanumextrakt with acetyl-11-keto-boswellic acid is enriched ss.

Optionally, the hydrogenation of incense, and the physiologically acceptable salts and derivatives, as well as hydrogenated Olibanumextrakte can be used.

Suitable [0040] According to the invention as an additive containing boswellic acids are also herbal extracts, their hydrogenation, boswellic acids, physiologically acceptable salts of the boswellic acids, derivatives of boswellic acids, herbal preparations containing boswellic acid or acetyl-11-keto-boswellic acid ss-containing plant extracts.

Also suitable are hydrogenation products of other ingredients of the incense, such as from the other Tirucallensäure or triterpenoid compounds, salts or derivatives thereof as well as plant extracts containing these compounds.
According to the invention are suitable as an additive continue the hydrogenation of acetyl-11-keto-boswellic acid or ss-ss-11-keto-boswellic acid or ss-boswellic acid, the latter may contain small amounts of alpha or gammaBoswelliasäure.

Also suitable are hydrogenation of ss-boswellic acid, Boswelliasäureformiat ss, ss-boswellic acid, acetyl-ss-boswellic acid, but also of the boswellic acids and derivatives of boswellic acids, which are described in DE-A 42 01 903, of which reference is made to the will.

[0041] boswellic acids, in particular acetyl-11-keto-boswellic ss can, in a known manner to be obtained from boswellic acid-containing plants.

Suitable Boswelliaarten are: Boswellia serrata, Boswellia carteri, Boswellia sacra, Boswellia papyrifera, Boswellia frereana, boswellia or Boswellia thurifera glabra, but also other members of the Boswellia family, or Commiphora family can be used.

[0042] As inventive hydrogenation can Dihydroboswelliasäuren, their physiologically acceptable salts, derivatives thereof, and physiological salts of derivatives, in particular ss-dihydro-boswellic acid acetate, ss Dihydroboswelliasäure formate, ss Dihydroboswelliasäure methyl ester, acetyl-ss-dihydroboswelliasäure, alpha dihydro-boswellic acid, acetyl-a-formyl-a-dihydroboswelliasäure and dihydroboswelliasäure be used.

[0043] According to the invention are also suitable keto Dihydroboswelliasäuren their physiologically acceptable salts, derivatives thereof and physiological salts of the derivatives, especially acetyl-11-keto-ss-dihydroboswelliasäure, 11-keto-ss-dihydroboswelliasäure or formyl-11-keto-ss -dihydroboswelliasäure.
The compounds useful according to the invention can be obtained by hydrogenation, preferably by catalytic hydrogenation.

The hydrogenation of these compounds is carried out in a manner known in the art, preferably so that the backbone of the compound is selectively hydrogenated.

Such a method is described for example in WO 02 / 15916th

[0044] For the preparation of the inventive pharmaceutical composition may further contain a hydrated plant extract is from incense, for example, ethanol, methanol, chloroform extraction, ether extraction, or obtained may be used.

[0045] The Olibanumextrakte used in the invention include, in particular ss-boswellic acid and / or acetyl-ss-boswellic acid and / or acetyl-11-keto-ss-boswellic acid and / or 11-keto-ss-boswellic acid and optionally with acetyl-11- beta.-keto-boswellic acid at levels higher than the natural content enriched.

[0046] In accordance with the invention physiologically acceptable salts, especially the sodium, potassium, ammonium, magnesium and calcium salts of the above compounds are understood.

Derivatives such as in particular Ci-C6 - alkyl esters of Dihydroboswelliasäure understood, in

which the carboxyl group of the Dihydroboswelliasäure was esterified with a corresponding alcohol.

Such Dihydroboswelliasäurealkylester are for example the methyl ester, ethyl ester, n-propyl, iso-propyl, n-butyl, iso-butyl esters and the tertButylester Dihydroboswelliasäuren.

It is also possible that the hydroxyl group of the Dihydroboswelliasäure is esterified with a physiologically acceptable carboxylic acid, for B. a dbis C2o, in particular having a CRC8 carboxylic acid, in particular formic acid or acetic acid.

Herbal preparations that can be used for the preparation of the novel Olibanumextrakte are commercially available, for example from the company PL-Thomas, New Jersey under the name 5-Loxin (TM).
This is a standardized Olibanumextrakt of Boswellia serrata, at least 30% of the acetyl-11-keto-ss-boswellic acid contains.

[0047] According to the invention, however, can also Olibanumextrakte and their hydrogenation products are used by other preparations, in particular according to the invention can also hydrogenation synthetically manufactured or natural way derived ingredients of incense, especially acetyl-11-keto-ss-boswellic acid and / or 11 - beta.-keto-boswellic acid and / or ss-boswellic acid, optionally in admixture with a-und/oder yBoswelliasäure and / or several of the derivatives according to the invention are preferably used the boswellic acid, as described above, to produce the drug.

[0048] According to the invention, the medicament in addition to the herein defined, based on incense ingredients or other active ingredients, especially other herbal ingredients contained.

[0049] According to the invention is brought into a nanoparticulate form with one or more of the optional additives described above, the Olibanumextrakt.

Preferably, the nanoparticles have a size in the range of 30 to 400 nm, preferably 60 to 200 nm, more preferably from 100 to 200 nm.

Those skilled in the art will vary depending on use of the medicine anvisierter known per se and suitably produce nanoparticles.

[0050] Since the Olibanumextrakt, especially the hydrogenated Olibanumextrakt and especially the hydrogenated boswellic acids and their derivatives and salts have a very low toxicity, their compatibility is generally good.
Your dosage can be easily selected by the treating physician according to the severity of the condition being treated and other factors such as the duration of the disease, possible known incompatibilities of the patient's general condition of the patient, etc..

The drug according to the invention can be formulated so that it is in unit doses one or more times daily, in particular mono-to four times a day can be administered.

[0051] For topical application, the inventive nanoparticles can be incorporated into dermatocosmetic ointment bases, which can be applied several times daily to the affected skin.

The inventive pharmaceutical compositions may be, for example, in solid, semisolid, or liquid form.
Suitable creams, ointments, gels, lotions, etc.

[0052] For oral administration come into consideration tablets, granules, capsules, solutions, etc., which include pharmaceutically acceptable additives in addition to the invention nanoparticles.

Furthermore, the pharmaceutical compositions may be in a manner known in the art as liquid compositions for oral administration.

Preference for oral administration enteric softgels are thin.

[0053] The invention is not to be bound by the following statement, but probably have the novel nanoparticles of the active substance (or substances) in enteric softgels to a significantly improved bioavailability, since the nanoparticles probably similar transport mechanisms in the intestine as the Phosphatidylcholinmatrix triglycerides are absorbed via chylomicrons.

Other examples of suitable formulations and methods for their preparation can be found in DE-A 44 44 288 and DE-A 44 45 728, to the extent fully incorporated herein by reference.

[0054] Finally, the invention nanoparticles of the active ingredient (or ingredients) for coating medikamenteneluierenden implants, such as stents, are suitable.

By the inhibitory effect on the proliferation of smooth muscle cells in the vessel wall and by inhibiting the inflammatory processes counteract the novel nanoparticles of in-stent restenosis.

According to the international medical literature, it comes with the conventional stent within the first six months in 30% of cases a stent closure or to an in-stent stenosis.

For nanoparticles coated with the inventive stent is a high probability that this closure rate can be significantly reduced.

[0055] By inhibiting effect on the proliferation of connective tissue cells, and by inhibiting the inflammatory processes as an additive to implant erfindungsmässen OlibanumNanopartikel Cement (bone cement) act against the surface of implants of Fremdkörpergranulombildung and loosening of joint implants by Entzündungsund against degeneration processes.

[0056] Examples

[0057] Example 1:

[0058] Use of the nanoparticles according to the invention as a topical cream to treat inflammatory skin diseases,

[0059] 1-5% (relative to the ointment base) of the novel nanoparticles are applied morning and evening to the affected skin and gently massaged.

Inflammation is a visible reduction in pilot studies in actinic keratosis, eczema and psoriasis already detectable after one week.

For example, the inflammatory lesions were completely healed after a treatment period of 6 weeks at a cohort of 5 patients with actinic keratoses in 3 patients.

In one patient the result was confirmed histologically.

In 2 patients, the skin lesions were significantly improved.

[0060] Example 2:

[0061] possibility of enhancing the effect of

[0062] In inflammatory skin diseases according to the invention nanoparticles were prepared as described in Example 1 above, is applied. In addition, activation was:

[0063] 1 A soft laser, 785 nm, laser shower (from MKW Laser System) with 14 x 10 mW power, 5 minutes in direct skin contact times per two weeks and

[0064] 2 With water-filtered infrared-A (from Hydrosun) for 20 min at 30 cm distance, two per week, performed once. The infrared activation of nanoparticles according to the invention was carried out 2 times a week.
By activation with infrared led to a much faster effect.

The postulated mechanism could be a direct activation of boswellia triterpenes by energy absorption and improve the penetration properties of the skin by a low-thermal radiation.

Optimized frankincense and myrrh treating process
CN1349813

[Machine translation]

The optimization treatment process of the Chinese medicinal materials of frankincense and myrrh includes the following steps: pulverizing, dissolving and extracting to obtain volatility component, then using beta-CD to make mixing and inclusion, cooling and filtering to obtain the invented frankincense and myrrh extract. Before inclusion and after one combined image structure of the volatile oil and beta-CD gets obviously change, so that when the frankincense and myrrh are used, it can reduce irritation to gastrointestinal tract, and can reduce production of adverse reactions of abdominal pain, nausea, vomiting, diarrhea, dyspepsia and anoraxia, etc. to further raise medicine effect of frankincense and myrrh and raise the preparation quality.

The invention relates to the field of medicine, in particular to a frankincense, myrrh optimization processes...

The object of the present invention can be achieved by the following measures:
One kind of frankincense, myrrh optimized treatment process is frankincense, myrrh become

crushed particles With petroleum ether, dissolved, extracted until a colorless, volatile petroleum ether and volatile oil obtained, and then With ß-CD solution mixing, cooling, filtration can be.

The invention will be further described in detail with reference to Examples:

process: take frankincense, myrrh, to crush a particle with petroleum ether
Solvent dissolved, extracted with Soxhlet extractor pumping until colorless, and then in a water bath hood
Within volatile petroleum ether to obtain volatile oil and seal it back; Another ß-CD was dissolved in distilled
Water and placed DF-101 collector-type magnetic stirrer, adding essential oil dissolved in ethanol,
Maintaining a predetermined temperature, mixing a predetermined time, and make up water, then in the refrigerator to
Chilled for 24 hours, with a dry pump suction filter, washed with a small amount of ethanol, 60 ? dried for 2
Hours, weighing, measuring oil content, and calculate the oil utilization and yield...

The results show that the temperature of the oil contained utilization rate and the oil has a significant impact on the yield of No significant effects feed ratio and stirring time of oily rate has a significant impact on oil profits With a yield rate and a significant effect

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MEDICINAL PLANT COMPOSITION FOR OF THE KIDNEYS AND URINARY TRACT AND PREVENTION OF KIDNEY STONES
RS20120385

BOSWELLIA SERRATA EXTRACT FOR REDUCING INFLAMMMATION CAUSED BY UV LINGHTS, COSMETIC PREPARATION COMPOSITION AND METHOD FOR MANUFACTUREING THEREOF
KR20130131669

TOPICAL MICRO-EMULSIONS FOR THE TREATMENT OF RHEUMATIC DISORDERS
NZ597016

PREPARATION FOR WEIGHT LOSS MANAGEMENT
US2013136814

COMBINATION HERBAL PRODUCT TO BENEFIT THE RESPIRATORY TRACT IN PEOPLE EXPOSED TO SMOKE
US2013122123

Cytokine modulators and related method of use

TW201206455

SYNERGISTIC HERBAL COMPOSITION FOR TREATMENT OF RHEUMATIC AND MUSCULO-SKELETAL DISORDERS (RMSDS)
US2012021077

CYTOKINE MODULATORS AND RELATED METHOD OF USE
MY144299

COMPOSITION FOR DOWN-REGULATING PRO-INFLAMMATORY MARKER
JP2011178773

Synergistic anti-inflammatory compositions comprising boswellia serrata extracts
CN102170892

COSMETIC COMPOSITION HAVING ANTI-INFLAMMATION AND SKIN REGENERATION EFFECT
KR20110058755

A HERBAL COMPOSITION FOR INFLAMMATORY DISORDERS
WO2011080579

Novel Herbal Composition for Treatment of Psoriasis and Other Skin Disorders
US2011165136

COMPOSITIONS COMPRISING EXTRACTS FROM BOSWELLIA SERRATA
KR20110026449

Methods and Compositions for Modulating Hair Growth or Regrowth
US2011059192

MOISTURIZING RETINOL COMPOSITION
US2011020414

CRUDE DRUG-CONTAINING COMPOSITION AND USE THEREOF
JP2010202634

ANIMAL OR HUMAN HEALTH FOOD SUPPLEMENT FOR RELIEVING AND SUPPORTING JOINTS
WO2011030021

COSMETIC COMPOSITION HAVING ANTI-INFLAMMATION AND SKIN REGENERATION EFFECT
KR20100060751

NOVEL FORMULATIONS TO INHIBIT CYCLOOXYGENASE AND PRO-INFLAMMATORY CYTOKINE MEDIATED DISEASES
WO2010068264

SEDATIVE AND SLEEP-IMPROVING AGENT

JP2010064969

Formulations for the treatment of arhritis conditions
NZ544400

Topical formulations for the symptomatic treatment of musculoskeletal disorders
EP2149378

BIOLOGICALLY ACTIVE ADDITIVE FOR PREVENTING AND TREATING ASTHMA AND DISEASES OF THE UPPER AIR PASSAGES AND A METHOD FOR THE PRODUCTION THEREOF
WO2008150197

Cytokine modulators and related methods of use
CN101291681

COMPOSITIONS AND METHODS FOR THE MANAGEMENT OF HYPERPROLIFERATIVE DERMATOLOGICAL CONDITIONS
WO2006022762 (A1)

Natural composition for treating bone or joint inflammation
US5888514

Natural Remedy-Dietary Supplement Combination Product
US2008213236

3-O-acetyl-11-ketoboswellic acid for relaxing the skin
US2004166178

Compositions and methods for the management of hyperproliferative dermatological conditions]
US7582314

Novel polyherbal preparation for the prevention of atherosclerosis and hyperlipidemia
US2006147555

Cytokine modulators and related methods of use
US2007031518

Methods and compositions for modulating hair growth or regrowth
US2007036742

Composition including superoxide dismutase and prickly-pear cactus for minimizing and preventing hangovers
US2008020071 (A1)

Compositions of boswellic acids derived from Boswellia serrata gum resin, for treating lymphoproliferative and autoimmune conditions
US2006234990

Boswellin compositions enhanced with 3-beta-acetyl-11-keto-beta-boswellic acid ("AKBA") industrial manufacture and uses
US2003199581

Phytonutrient formula for the relief of chronic pain resulting from inflammation
US2004037903

Method of treating musculoskeletal disease and a novel composition therefor
US5494668

Cytokine modulators and related methods of use
US2006029686

Water soluble bioactive fraction isolated from gum resin exudate of Boswellia serrata, process for isolation thereof composition containing said fraction and use thereof
US2005192251

Water soluble bioactive fraction isolated from gum resin exudate of boswellia serrata, process for isolation thereof composition containing said fraction and use thereof
US2003186932

Dietary supplement for nutritionally promoting healthy joint function
US6224871

METHODS AND COMPOSITIONS FOR THE BENEFIT OF THOSE SUFFERING FROM POLYCYSTIC OVARY SYNDROME WITH CHROMIUM COMPLEXES
WO0236127

PHYTONUTRIENT FORMULA FOR THE RELIEF OF CHRONIC PAIN RESULTING FROM INFLAMMATION
WO0195727

CURATIVE-COSMETIC BALSAM
RU2301659

COSMETIC COMPOSITION FOR ENHANCING SKIN ELASTICITY COMPRISING BOSWELLIA EXTRACT AS ACTIVE INGREDIENT TO REMOVE SKIN WRINKLES AND ENHANCE SKIN ELASTICITY
KR20040078498

HEALTH FOOD PRODUCTS WITH AN AIM TO IMPROVE DIABETES, PERIODONTAL DISEASES AND ARTHRITIS
JP2007326839

HAIR TONIC
JP2005089394

CASPASE-8 ACTIVITY INHIBITOR-CONTAINING COMPOSITION
JP2004307456

CYCLIC AMP (CAMP) PRODUCTION INHIBITOR
JP2004359571

CASPASE-9 ACTIVITY INHIBITOR-CONTAINING COMPOSITION
JP2004307443

SKIN LOTION
JP2000154131

A process for the isolation of a new boswellic acid from the gum resin of the plant boswellia serrata
IN182615

A process for the preparation of a water soluble bioactive composition containing polysaccharides from the gum resin exudate of boswellia serrata
IN190988

ANTIAGING COMPOSITION
WO2006061627

COMPOSITIONS CONTAINING BOSWELLIA EXTRACTS
WO0057893

WATER SOLUBLE BIOACTIVE FRACTION ISOLATED FROM GUM RESIN EXUDATE OF BOSWELLIA SERRATA, PROCESS FOR ISOLATION THEREOF, COMPOSITION CONTAINING SAID FRACTION AND USE THEREOF
EP1485113

PREPARATIONS COMPRISING BOSWELLIC ACIDS FOR INHIBITING THE SYNTHESIS OF PROSTAGLANDIN E2
WO2008058514

Use of a combination of pressed plant juices e.g. artichoke, to lower side effects of medical therapy
DE19850543

Product with selective antinflammatory action and antifibrotic properties
EP1637153

MEDICINAL PLANT COMPOSITION FOR OF THE KIDNEYS AND URINARY TRACT AND PREVENTION OF KIDNEY STONES
RS20120385

Method for producing frankincense selenium-rich blueberry vinegar by means of yeast display of lipase
CN103756866

Formula of medicinal liquor for relaxing muscles and tendons and invigorating blood circulation
CN103756858

External use powder for treating rheumatism
CN103751735

Externally-used tradional Chinese medicine [TCM] for treating heel pain
CN103751726

Preparation method of TCM for treating heart-blood-stagnation-type hyperlipemia
CN103751712

TCM external preparation for treating varix of lower limb and preparation method thereof
CN103751708

Chinese herbal medicinal liquor used for treating arthromyodynia and preparation method thereof
CN103751703

Chinese medicinal composition for treating chronic gastritis
CN103751684

Medicament for external application for treating osteoproliferation
CN103751672

TCM composition for treating gout
CN103751642

Chinese herbal medicine granules for treating ischioneuralgia and preparation method thereof
CN103751606

Chinese herbal medicine composition for treating clinical mastitis
CN103751509

Medicament for treating mastitis and preparation method thereof
CN103751497

External medicinal liquor for treating fibromyalgia
CN103751484

TCM preparation for treating seborrheic alopecia and preparation method thereof
CN103751466

TCM composition for treating lumbar muscle degeneration and preparation method of composition
CN103751464

TCM composition for treatment of horse injury and preparation method thereof
CN103751457

Method for preparing medicine for treating disharmony between liver and spleen

CN103751432

Formula of Equine piroplasmosis treatment drug
CN103751393

Formula of horse cerebrospinal filariasis treatment drug
CN103751392

Formula of horse stomach myiasis treatment drug
CN103751391

Formula of Equine ixodiasis treatment drug
CN103751390

Formula of Equine trypanosomiasis evansi treatment drug
CN103751389

Formula of Equine acariasis treatment drug
CN103751388

Medicinal combination for improving stallion sexual excitability
CN103751386

Medicinal combination for inhibiting stallion sexual excitability
CN103751385

TCM composition for treating mare mastitis
CN103751384

Medicinal combination for improving mare pregnancy rate
CN103751383

Medicinal combination for inhibiting mare oestrus
CN103751382

Fetus-protecting medicinal combination for mare at early stage of pregnancy
CN103751381

Pharmaceutical composition for induction of early-pregnant mare abortion
CN103751380

TCM composition for treatment of mare ovarian cyst
CN103751379

TCM composition for treatment of mare hydrohytera
CN103751378

TCM composition for treatment of mare hysteromyoma
CN103751377

TCM composition for treatment of mare andromania
CN103751376

Pharmaceutical composition for raising mare sexual excitation
CN103751375

Pharmaceutical composition for induction of mare superovulation
CN103751374

TCM composition for treatment of mare failed in oestrus for a long time
CN103751373

TCM composition for prevention of mare abortion
CN103751372

TCM composition for treatment of mare retained fetal membranes
CN103751371

TCM composition for shortening mare luteal phase
CN103751370

TCM composition for raising stallion semen quality
CN103751369

Composite Chinese medicine for treating equus animal orchitis
CN103751368

TCM composition for treatment of mare pyometra
CN103751367

TCM composition for treatment of mare ovarian atrophy
CN103751366

TCM composition for treatment of mare blennometritis
CN103751365

TCM composition for treatment of mare persistant corpus luteum
CN103751364

Lotion with effect of bone righting
CN103751326

External TCM preparation for treating fasciitis and preparation method thereof
CN103751310

TCM external preparation for treating intercostal neuralgia and preparation method thereof
CN103751309

Anti-rheumatic, anti-inflammatory and antalgic pharmaceutical composition

CN103751306

Plaster for treating rheumatism and preparation method thereof
CN103736069

TCM composition for treating protrusion of lumbar intervertebral disc
CN103736067

Steaming therapy medicament for treating lumbocrural pain and lumbar disc herniation
CN103736053

Tissue regeneration promoting plaster for traumatic injuries
CN103736025

TCM preparation for treating insomnia and dreamful sleep
CN103736019

Medicament for treating hyperplasia of mammary glands and preparation method thereof
CN103736016

Chinese herbal medicine formula for treating arteriosclerosis and preparation method
CN103736007

Medicament for treating mammary hyperplasia
CN103736003

Chinese patent medicine for treating gastritis
CN103735979

Externally-used TCM lotion for treating mammary hyperplasia
CN103735953

Chinese medicinal mixture for treating perianal abscess
CN103735928

Plaster for treating cervical spondylosis
CN103735796

Pain relieving and inflammation diminishing compound medicine for resisting rheumatalgia
CN103735777

Preparing method and use method of fire moxibustion dredging dispersant for treating anemofrigid-damp arthralgia
CN103735766

TCM composition for treating hyperostosis and cold arthritis and preparation method thereof

CN103735763

External medicinal liquor
CN103735759

Composition for treating toxic heat flaming-type systemic scleroderma
CN103735747

Chinese medicinal formula for treating scald and burn
CN103735744

TCM spray for treating scalds and burns without scar
CN103735738

Preparation method of Chinese medicinal composition and Chinese medicinal composition prepared by using preparation method
CN103735712

Preparation method and application method of fire moxibustion medicated thread for treating herpes zoster
CN103735651

Szechuan lovage rhizome health care wine for scrofula
CN103725577

Aggregation curcuma zedoary health-care wine
CN103725557

TCM composition for treating chronic atrophic gastritis
CN103721173

TCM composition used for treating stomachache
CN103721159

TCM preparation for treating functional dyspepsia
CN103721157

TCM formula for treating gastric diseases and preparation method thereof
CN103721104

External TCM preparation for treating chronic nasosinusitis and preparation method thereof
CN103721061

Frankincense health care wine for treatment of peptic ulcer
CN103721021

TCM composition used for treating pyogenic infection
CN103720978

TCM composition used for treating iliac vein thrombus
CN103720895

TCM prescription for treating cervical spondylosis and preparation method thereof
CN103720893

TCM for treating spleen deficiency
CN103720868

Chinese herbal medicine for rapidly recovering after fracture and preparation method thereof
CN103720855

Preparation method of liver-protecting medicine
CN103720811

Medicinal liquor for removing blood stasis and treating bone fracture
CN103720807

TCM preparation for treating elytritis
CN103720749

Rheumatism patch and preparation method thereof
CN103705904

Hyperostosis patch and preparation method thereof
CN103705903

TCM preparation for treating pharyngitis
CN103705880

External TCM for treating supraclavicular or infraclavicular (axillary) and inguinal lymphadenectasis
CN103705874

Steaming hot-compress paste for treating cervical spondylosis and lumbar spondylosis
CN103705864

TCM for improving postoperative qi-yin deficiency of thyroid cancer
CN103705863

External use medicinal liquor for relaxing tendons and activating collaterals and preparation method thereof
CN103705858

TCM preparation for treating tenovaginitis of flexor digitorum, as well as preparation and application thereof
CN103705852

Chinese medicament decoction for treating hyperostosis

CN103705801

TCM powder for stopping bleeding and diminishing inflammation
CN103705735

Topical lotion for promoting to heal bone fractures
CN103705700

TCM preparation for treating acute gastroenteritis
CN103705692

TCM patch for treating cervical spondylosis
CN103705681

Ointment for treating rheumatism
CN103705679

Tong therapy medicine for treating knee osteoarthritis
CN103705673

Formula and preparation method of TCM for promoting recovery and improving deficiency of qi and blood after orthopedic surgery
CN103705621

Formula of paste for removing slough and promoting growth of tissue regeneration
CN103705616

Externally applied TCM powder for treating burns and scalds
CN103705615

Method for preparing beauty treatment wax
CN103705408

Frankincense healthcare tea for peptic ulcer
CN103704391

TCM composition for treating amenorrhea
CN103690925

Moxibustion medicinal strip for treating rheumatic arthralgia
CN103690905

Compound TCM preparation for treating trauma diseases such as burn, scald, bedsore and the like
CN103690903

TCM decoction for treating stomach cancer
CN103690889

Plaster for relieving oppression and masses and preparation method of plaster

CN103690887

External TCM fuming and washing lotion prescription for treating gout
CN103690846

TCM formula for treating hyperplasia of mammary glands
CN103690722

TCM preparation for treating stroke
CN103690717

Muscle relaxing pills and preparation method thereof
CN103690714

External TCM foot bathing agent for warming and smoothing foot blood vessels
CN103690708

TCM composition for treating dampness-heat-type hemorrhoids
CN103690702

Broad-spectrum antibacterial cream
CN103690698

TCM composition for treating blood-stasis-type hemorrhoids
CN103690658

TCM composition for treating intestinal-heat-type hemorrhoids
CN103690640

Medicated wine for treating traumatic injury
CN103690623

TCM for treating prostatitis
CN103690614

TCM preparation for treating rheumatism
CN103690605

Preparation method of joint health care medicine oil
CN103690600

Puerpera health product
CN103689583

TCM formula for treating scapulohumeral periarthritis
CN103656604

Externally-applied medicine paste for treating burns and preparation method of paste
CN103656593

TCM paste for treating cervical spondylosis and preparation method of paste
CN103656592

Plaster capable of activating blood circulation to dissipate stasis and preparation method thereof
CN103656578

Formula of neurologic surgery inflammation elimination and pain relieving TCM
CN103656574

TCM for treating tumors and cancers
CN103656554

TCM tablet capable of relaxing meridian and activating blood circulation and preparation method of tablet
CN103656523

TCM formula for treating gout
CN103656509

Application powder for removing toxicity and dredging collaterals
CN103656506

TCM composition for treating diabetes complicated by diabetic feet
CN103656488

TCM for curing thrombophlebitis
CN103656471

TCM honeyed pill for treating gastric cancer and preparation method thereof
CN103656461

TCM for treating hysteromyoma
CN103656431

TCM for treating female hysteromyoma
CN103656430

TCM for treating hyperostosis
CN103656336

Medicine for treating optic atrophy and preparation method of medicine
CN103656290

Externally-applied plaster and preparation method thereof
CN103656139

External application medicament for treating sprain
CN103656094

TCM capable of treating lung cancer
CN103656089

TCM powder for treating dental ulcer
CN103656088

TCM formula for treating varicosity
CN103656081

Externally-applied ointment for treating carbuncle and furuncle and preparation method thereof
CN103656062

External-application plaster for treating hyperosteogeny
CN103656027

Special bone fracture treatment drug and preparation method thereof
CN103656024

Pharmaceutical composition for treating rheumatism bone disease and preparation method thereof
CN103656022

Buccal TCM formula for treating chronic pharyngitis
CN103656017

Preparation method of externally-used medicinal wine for treating burns and scalds
CN103655944

Preparation method of anti-inflammatory TCM oil
CN103655934

TCM composition for treating prolapse of lumbar intervertebral disc
CN103655897

Special TCM preparation for treating rheumatoid arthritis
CN103655895

Preparation method of external-application medicinal liquor for treating arthritis
CN103655884

Unguent for treating scalds
CN103655818

TCM preparation for treating skin ulcers and preparation method thereof
CN103655771

Preparation method of frankincense shower gel
CN103655331

Healthcare food for middle-aged women
CN103652880

TCM for treating tumor of chest wall and preparation method thereof
CN103638476

TCM composition for treating thoracic obstruction
CN103638446

TCM composition capable of relieving pain
CN103638414

Internal medicinal liquor for treating traumatic injuries and preparation method thereof
CN103638402

Medicament for treating wind-cold-dampness arthralgia and preparation method of medicament
CN103638386

TCM decoction for treating intestinal carbuncle
CN103638308

Toxicity-removing and tissue regeneration-promoting paste for treating ulcers and preparation method thereof
CN103638214

External TCM preparation for treating bedsore
CN103638173

Medicine for treating mycotic stomatitis
CN103638131

Traditional Chinese medicament preparation for fracture healing
CN103638104

Antirheumatic health-care wine and preparation method thereof
CN103627605

Soluble hemostatic gauze with functions of antisepsis and anti-inflammation
CN103623461

TCM preparation for treating chronic gastritis and preparation method thereof
CN103623388

External application medicine for treating eczematous dermatitis and preparation method of powder of external application medicine
CN103623309

Traditional Chinese herbal preparation for treating thyromegaly and preparation method thereof
CN103623306

TCM formula for treating urinary calculus
CN103623284

TCM composition for treating hyperplasia of mammary glands
CN103623226

Compound medicine oil for treating scalds and burns and preparation method thereof
CN103623198

Traumatic injury treatment paste and preparation method thereof
CN103623162

Patch for promoting blood circulation to remove meridian obstruction and eliminating cold to stop pain and preparation method thereof
CN103623160

Soft tissue contusion treatment external washing TCM
CN103623043

Aromatic composition having stress-relieving and relaxing effects and cosmetic composition containing same
CN103619322

Medicine for treating uterine prolapse and preparation method thereof
CN103611144

Plaster for treating periostitis
CN103611134

Blood circulation promotion and pain alleviation gel and preparation method thereof
CN103611133

Ointment for treating sore and furuncle and preparation method thereof
CN103611084

TCM composition for treating scrofula
CN103611060

TCM composition for treating chronic appendicitis
CN103611001

Chinese medicinal anti-freckle composition, Chinese medicinal anti-freckle preparation and Chinese medicinal anti-freckle mask
CN103610926

Ointment for treating burns and scalds and preparation method thereof

CN103610888

TCM composition for treating cervical erosion
CN103610880

Orally taken TCM for treating appendicitis of pregnancy
CN103610777

External Chinese medicinal composition for treating soft tissue injuries
CN103610774

TCM for treating cerebral thrombosis
CN103610772

Foot-soaking TCM composition for treating diabetic feet
CN103610770

Cervical and lumbar rehabilitation pillow
CN103610360

Externally applied TCM for treatment of cervical spondylosis
CN103599494

Externally-applied TCM ointment for treating traumatic injury, catagma, old rheumatalgia and trauma and preparation method thereof
CN103599441

TCM for treating female menopausal syndrome
CN103599406

Plaster having effects of promoting blood circulation to remove blood stasis
CN103599402

Medicament for treating tuberculosis
CN103599375

TCM liquid extract for treating ankylosing spondylitis
CN103599294

TCM composition for treating fibroid
CN103599286

TCM ointment for treating osteoporosis
CN103599239

Eye cream and preparation method thereof
CN103599062

Externally used TCM wine for treating rheumatoid arthritis

CN103585614

Rheumatism ostalgia plaster
CN103585590

TCM for treating bone fracture and preparation method thereof
CN103585579

TCM formula for relieving pain and removing paralysis
CN103585533

Spray for treating dermatophytosis
CN103585496

Medicinal liquor capable of relaxing muscles and stimulating blood circulation rapidly and efficiently
CN103585375

TCM preparation for treating deep venous thrombosis of lower limbs
CN103585315

Analgesic patch
CN103566343

Osteosynthesis TCM and preparation method thereof
CN103566305

Pellet used for treating bone fracture
CN103566278

TCM composition for treating toothache
CN103566233

TCM for treating mould
CN103566188

TCM for treating acute mastitis
CN103566154

Medicine for treating bone fracture
CN103566073

TCM enema agent for treating gynecologic inflammations
CN103566060

Medicament for treating herpes
CN103565989

TCM composition for treating breast pain and using method thereof
CN103565985

TCM formula for treating cold dampness arthralgia
CN103565950

Swelling-eliminating and pain-relieving TCM capsule preparation and preparation method thereof
CN103565925

Specific medicine for treating bedsore and promoting quick healing of wound
CN103565921

Production method of health-care bone-strengthening wine
CN103555531

TCM composition for treating alactation
CN103550703

Medicament for treating breast cancer
CN103550695

Chinese medicinal composition for treating lumbar-leg pain
CN103550685

TCM formula of externally applied specific orthopaedic dogskin plaster
CN103550648

External medicinal composition for treating pain from rheumatism
CN103550620

TCM pills for treating lumbar spondylosis
CN103550617

Pharmaceutical composition for preventing and treating cervical spondylosis and lumbar spondylosis
CN103550540

Drug for treating bone diseases
CN103550456

External TCM for treating rheumatic cervical spondylosis and preparation method thereof
CN103550447

External preparation for treating hyperplasia of mammary glands
CN103550442

TCM composition for treating hyperostosis
CN103550380

Medicinal liquor for treating intractable wind-cold pain
CN103550375

Capsule for expelling wind and damp
CN103550366

External tincture for treating wind-cold-dampness arthralgia
CN103550365

Medicinal liquor for treating Bi pain
CN103550362

TCM plaster for treating pain in neck, shoulders, back and legs
CN103550300

Bone strengthening and body building health care wine
CN103540509

Preparation method of postoperative pharmaceutical adjuvant paste for anorectal diseases
CN103536959

TCM composition for treating dysmenorrheal
CN103536877

TCM for treating abdominal pain of endoretention of damp heat
CN103536816

Traditional Chinese medicament for treating mammary gland hyperplasia in lactation period
CN103536765

Medicine for treating lumbar disc herniation
CN103536760

Medicament for treating cystospasm and application thereof to acupuncture point moxibustion
CN103536731

TCM composition with enhanced pain-relieving and calming effects and preparation method thereof
CN103536701

Chinese medicinal ethosome gel patch for treating herpes zoster and preparation method thereof
CN103536700

Drug for treating ischialgia
CN103536671

Osteosynthesis medicine for department of traumatology and preparation method of

osteosynthesis medicine
CN103536655

Chinese medicine composition for treating knee osteoarthritis and preparation method of Chinese medicine composition
CN103520654

TCM preparation used for treating gastritis
CN103520607

Medicinal liquor used for treating lumbocrural pain, hyperostosis and sciatica
CN103520579

Compound essential oil for relieving sad mood
CN103520524

TCM pill for treating ronic pyogenic osteomyelitis
CN103520513

TCM for treating stasis-blocking-channel type chest stuffiness and pains
CN103520459

Haemorrhoids medicine
CN103520453

Chinese medicinal patch for treating dysmenorrhea, and preparation method and application thereof
CN103520437

External preparation for treating traumatic injury, stasis, gall and soft tissue contusion
CN103520417

Pure TCM externally-applied bone-knitting paste
CN103520416

Medicament for treating traumatic injuries
CN103520415

External medicine for skin ulcer
CN103520345

TCM preparation used for treating traumatic injury
CN103520309

Plaster formula for treating waist, neck, shoulder and knee pain
CN103520308

Externally-applied TCM capable of treating neurothlipsis symptom caused by protrusion of intervertebral disc of human body
CN103520307

Plaster formula for treating burns
CN103520259

Medicine used for treating orthopaedic diseases, and preparation method thereof
CN103505697

TCM composition for treating primary bronchus lung cancer
CN103505670

Five-root decoction for treating infantile tonsillitis and preparation method thereof
CN103505647

Externally applied TCM used for auxiliary treatment of diabetes and complications of diabetes
CN103505545

Composition capable of growing and blackening hair
CN103505542

Scald treating ointment
CN103505502

Fracture rapid healing plaster prescription
CN103505499

Composite pawpaw glycoprotein icing powder and preparation method thereof
CN103504108

TCM composition for treating cold abdominal pain, and manufacturing method and application for TCM composition
CN103495146

Preparation method of TCM tablet for treating osteoporosis
CN103495011

Pharmaceutical composition and pharmaceutical preparation, preparation method thereof and application thereof
CN103494999

Externally applied patch for treating gynecological myoma of uterus and ovarian cyst
CN103494985

TCM for treating goat oral cavity ulceration and preparation method thereof
CN103494984

TCM composition for treating intractable headache
CN103494980

TCM lotion for treating gynecological inflammations as well as preparation method thereof

CN103494958

TCM for treating stiff neck
CN103494900

Method for preserving salted duck eggs with red cores by using frying salt
CN103494249

Blood-lipid-lowering pure TCM solvent
CN103494188

Medicine for treating manic-depressive psychosis and preparation method thereof
CN103479969

Chinese traditional medicine composition for preventing and treating pig foot-and-mouth disease and preparation method thereof
CN103479916

Tissue regeneration promoting ulcer recovering oil used for treating diabetic foot ulcer
CN103479883

Chinese herbal composition for treating cervical, lumbar and bone hyperplasia
CN103479840

TCM for treating ulcerative carbuncle
CN103479797

Compound essential oil for relieving aloneness
CN103479766

Preparation method of emulsifiable paste for physinatherapy
CN103479759

TCM composition for treating coronary heart disease angina and application thereof
CN103479712

Formula and production method of ganoderma lucidum blood-circulation-activating stasis-dissipating wine
CN103468546

Bone joint composite nutrient supplement and preparation method thereof
CN103463624

Medicament for treating gynecological diseases
CN103463606

Plaster for treating frostbite and preparation method thereof
CN103463595

Plaster for treating frostbite and preparation method of plaster

CN103463594

Medicinal liquor for treating sprain and fracture and preparation method of medicinal liquor for treating sprain and fracture
CN103463572

TCM for treating periumbilial pains
CN103463546

TCM preparation for replenishing and activating blood and dispelling wind and removing dampness
CN103463463

TCM preparation for treating rheumatism bone pain and preparation method thereof
CN103463381

TCM for treating femoral head necrosis and using method thereof
CN103463351

TCM composition for treating acute lumbar sprain
CN103463349

TCM for treating arthroncus of knee
CN103463304

TCM composition for treating eczema of scrotum as well as preparation method and use thereof
CN103463297

Chinese patent medicine for treating herpes zostor
CN103463278

Mammary gland hyperplasia treatment drug composition and preparation method thereof
CN103463276

Drug for treating acute injury pains
CN103463268

TCM liquid for external application and preparation process thereof
CN103463267

TCM composition for treating lumbar disc herniation
CN103463241

TCM fumigation composition used for treating bone fracture and using method thereof
CN103463233

FRANKINCENSE CHEWING GUM
WO2014003741

TCM COMPOUND GEL FOR EXTERNAL TREATMENT OF CANCER PAIN AND PREPARATION METHOD FOR SAME
WO2014000452

TCM composition for treating chronic gastritis
CN103446559

Chinese medicinal composition used for stopping pain and reducing swelling and preparation thereof
CN103446528

TCM ointment for treating burn and scald and preparation method thereof
CN103446409

Pharmaceutical composition, pharmaceutical preparation
CN103446398

Externally applied plaster and oral medicament mainly treating bone fracture and preparation method thereof
CN103446374

Externally applied medicine for treating hemorrhoids and preparation method of externally applied medicine
CN103446363

TCM capsule preparation for treating lumbar disc herniation and preparation method of TCM capsule preparation
CN103446360

Lavipeditum TCM preparation for curing talalgia
CN103446263

TCM composition for rapidly healing wounds
CN103446240

Anti-aging essential oil capable of whitening
CN103446011

Eye essential oil capable of reducing fine lines and removing black eyes
CN103446010

TCM formula for treating rheumatic arthritis by TCM fuming moxibustion therapy
CN103432558

TCM for treating scapulohumeral periarthritis and preparation method thereof
CN103432537

TCM composition for treating endometriosis and preparation method thereof
CN103432530

Traditional Kazakhstan enema pharmaceutical composition for treating infertility and preparation method thereof
CN103432529

TCM composition for treating acute pancreatitis
CN103432469

External TCM composition for treating traumatic injuries, carbuncle, furuncle, as well as skin and external diseases
CN103432396

TCM formula for treating femoral head necrosis by TCM fuming moxibustion therapy
CN103432328

Preparation method for TCM for treating liver depression-type acute cervical lymphnoditis
CN103432327

Externally used slough-removing tissue regeneration-promoting powder for facilitating healing of open wound, carbuncle, sore and ulceration
CN103432320

Traditional Kazakhstan externally applied pharmaceutical composition for treating infertility and preparation method thereof
CN103432314

TCM used for treating hemorrhoid and preparation method thereof
CN103432303

TCM for treating osteomyelitis
CN103432297

TCM for treating urticaria
CN103432296

TCM preparation as well as preparation method and use
CN103432259

Herbal anti-hair loss shampoo
CN103432060

Neck nursing essential oil
CN103432033

Whitening and freckle-removing essential oil
CN103432032

Whitening essential oil capable of fading fine lines
CN103432031

Formula of decoction capable of relaxing muscles and tendons, dispelling wind and strengthening body and bone, and preparation method of decoction
CN103431458

Chinese medicine for treating chronic soft tissue injury, and preparation method thereof
CN103417887

Traditional Chinese herbal preparation for treating prostatitis and diseases of urinary system
CN103417860

TCM preparation used for preventing and treating postoperative complications of gastric cancer and preparation method thereof
CN103417845

TCM composition for treatment of upper respiratory infection and acute tonsillitis in children
CN103417817

Medicine composition for detoxicating and relieving sore throat, and preparation method of medicine composition
CN103417795

TCM for treatment of cerebral hemorrhage
CN103417790

TCM for treating scald
CN103417782

TCM for treating surgical wounds
CN103417781

Bone fracture treatment plaster
CN103417780

Fixing powder
CN103417777

TCM for treating nerve headache and preparation method thereof
CN103417681

TCM for treating lumbar disc herniation
CN103417631

Sterile and detumescent external medicine for treating local pain and preparation method thereof
CN103417598

Moisturizing essential oil capable of removing blood streaks on face of user
CN103417439

Moisturizing essential oil capable of shrinking pores
CN103417438

Chinese medicine composition for external use and preparation method thereof
CN103405740

Chinese medicine preparation for treating joint pain of middle aged and elderly people
CN103405733

External unguent for treating scald and burn and preparation method thereof
CN103405731

TCM liniment for treating acnes and preparation method thereof
CN103405698

Drug for treating hemiplegia and preparation method thereof
CN103405684

Plaster for treating bone disease
CN103405644

Plaster for treating skin and external diseases
CN103405627

TCM for treatment of knee osteoarthritis
CN103405564

Compound essential oil for enhancing happy feeling
CN103405549

Chinese medicine compound effective part with effect of treating arthritis
CN103405487

Externally used compound TCM for treating cancer induced bone pain
CN103394062

Medicine for treating ectopic pregnancy
CN103394039

Medicine for treating ovarian cyst
CN103394037

TCM composition used for treating urinary calculus
CN103394035

Medicament for treating sciatica
CN103394031

Bruising internal injury first-aid Chinese herbal medicine composition and preparation method thereof

CN103394028

Anti-inflammatory resolutive liquid medicine for promoting blood circulation to arrest pain
CN103393999

TCM for treating mammary tumor
CN103393985

Chinese medicinal composition for treating prostatitis and its preparation method
CN103393956

TCM ointment for promoting postoperative wound healing, and preparation method thereof
CN103393953

Tradtional Chinese medicine composition for treating bone fracture and preparation method thereof
CN103393950

Drug for treatment of lumbago due to kidney-asthenia
CN103393904

Clinical-laboratory traumatic bactericidal inflammation-diminishing drug and preparation method thereof,
CN103393902

Externally used TCM for treating hyperostosis and rheumatic ostealgia and preparation method thereof
CN103393897

Bone-setting TCM decoction and preparation method thereof
CN103393895

Medicine for treating dysmenorrhea
CN103393877

Antirheumatic plaster and preparation method thereof
CN103393872

Externally used medicinal liquor for treating rheumatism, arthralgia and traumatic injury
CN103393871

TCM composition for treating osteoarthritis
CN103393840

TCM for treating catatonic headache and preparation method thereof
CN103393825

Medicine for treating sciatica
CN103393792

Application of frankincense extract in prevention and treatment of cardio-cerebral-vascular disease or liver and kidney injury
CN103393740

Decoction for treating liver cirrhosis
CN103386084

TCM patch
CN103386064

Externally applied medicinal liquor for curing pain
CN103386053

Liquid pain killer and preparation method thereof
CN103385996

Chinese herbal medicine composition for quick connection of muscles and bones
CN103385985

Drug for treating cervical spondylosis
CN103385945

Formula for osteoproliferation and application method thereof
CN103385944

Plaster for treating parotitis
CN103385942

Quick-acting rheumatism powder
CN103385930

Pharmaceutical composition for treating coronary heart disease, preparation and preparation method thereof
CN103385921

TCM for treating hyperosteogeny
CN103385908

Rhinitis slow-release drug
CN103385907

Compound essential oil capable of fading eye fine lines
CN103385822

Compound essential oil for fading striae gravidarum and obesity marks
CN103385810

Compound essential oil capable of fading spots
CN103385809

Externally used Chinese patent medicine for treating soft tissue injury
CN103381259

TCM for treatment of hyperosteogeny and spondylopathy
CN103381235

Pain-killing paste for bone illness
CN103381231

Medicine for treating traumatic injuries, traumatic arthralgia and pain caused by ecchymoma
CN103381230

TCM for treating trigeminal neuralgia and preparation method thereof
CN103381224

Pharmaceutical composition for treating cervical vertebra and lumbar vertebra diseases
CN103372183

Novel pure TCM spray for treating eczema
CN103372165

TCM for treating favus of scalp and preparation method thereof
CN103372136

TCM for treating rheumatoid
CN103372115

Preparation method of TCM for treating snake-sore sequelae
CN103372094

TCM composition for treating hysteromyoma
CN103356969

Medicine for treating stomach cancer and preparation method thereof
CN103356957

Chinese medicine composition for treating lumbar muscle degeneration
CN103356953

Method for relieving cramp pain of bone and peripheral tissue
CN103356950

TCM formula for treating costal chondritis
CN103356949

Formula of TCM for treatment of scalds

CN103356896

Method for extracting TCMs such as frankincense, myrrh and rhizoma bletillae
CN103356893

Aerosol spray for treating cervical spondylosis
CN103356864

Aerosol spray for treating cervical spondylosis
CN103356863

TCM for treating rheumatism
CN103356854

Aerosol spray for treating cervical spondylosis
CN103356850

TCM preparation for treating femoral head aseptic necrosis
CN103356842

Chinese medicine decoction for early treatment of bone and joint injury
CN103356825

Medicine for treating peptic ulcer and preparation method thereof
CN103349728

Compound essential oil for removing sense of fear
CN103349696