



***Boswellia serrata* ROXB. EX COLEBR. (Salai): An Ayurvedic Herb with Anti-inflammatory Potential**

Isha Kumari, Gitika Chaudhary*

Shuddhi Ayurveda, Jeena Sikho Lifecare Pvt. Ltd. Zirakpur 140603, Punjab, India.

*Corresponding author's E-mail: shuddhi.research@jeenasikho.co.in

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ABSTRACT

Medicinal plants hold a very significant place in the pharmaceutical, cosmetic, and nutraceutical industries. *Boswellia serrata* is one of such plants which is used in the pharmaceutical as well as cosmetic industry for so many purposes. This medicinal tree belongs to the family *Burseraceae* and called Indian Olibanum in English and Salai in Hindi. It is found in many Indian states including Madhya Pradesh, Jharkhand, and Andhra Pradesh etc. It is a well-recognized plant in Ayurvedic pharmacopeia. It is used in folk medicine practices to treat many human ailments such as inflammation, joint pain, cough, diarrhoea, dysentery, stomach pain, edema, hydrocoele, toothache and headache etc. The characteristic feature of the plant is its oleo-gum-resin which is a complex mixture of many therapeutically important phytochemical constituents such as boswellic acids. The main therapeutic activities associated with this plant are anti-inflammatory, anti-diabetic, anti-bacterial, anti-oxidant, hepatoprotective, nephroprotective, diuretic, anti-obesity, analgesic and anti-cancer. The present study has summarized the therapeutic and pharmacological value of *Boswellia serrata* along with its utilization in the Folklore medicinal system.

Keywords: Salai, Rasapanchak, Boswellic acids, Anti-inflammatory, Anti-diabetic.

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INTRODUCTION

Medicinal herbs are the most ancient form of medicines in the healthcare system known to the human race till now¹⁻³. Traditional plant formulations whether of folk medicinal system or well recognized ancient medicine system, are widely accepted and used to treat a variety of diseases⁴. People have influenced more towards plant-based medicines therefore a great rate of interest in herbal plants has been noticed in recent years. Factors like increase in human population, association of adverse health impacts with the western medication (allopathic medicines) and effective results of plant-based medicines, also have directed the interest of people towards these medicines. These factors have significantly increased the demand of herbal medicines in the market^{5,6}. India and China, are the two most recognized Asian countries in the world for having a maximum number of registered and well-known medicinal plant species. Subcontinent India is richly endowed with different medicinal plant species, forest products, and most ancient traditional medicinal systems (TMS)⁷. Even in the modern era where Western medicines are dominantly ruling, there is a vast portion of the population who prefers TMS⁸. One of the important medicinal plants

used extensively in various traditional systems of medicine is *Boswellia serrata* Roxb. ex Colebr (figure 1) that belongs to the *Burseraceae* family⁹. It is commonly known as Salai in India and Kondor in Arabic¹⁰. The market name of *Boswellia serrata* is frankincense¹¹. It is primarily known for its gum resin which is a milky liquid that oozes out from the bark. The gum resin is commonly known as 'sallai-guggal' or 'olibanum'¹². The English word 'Olibanum' has been originated from the Arabic word used for milk i.e. 'al-luban'. It is also believed that the word 'Olibanum' has derived from 'Lebanon' a famous place where resin was sold and traded with Europeans. Arabians called this place as "Oil of Lebanon". Whereas the word is originated from the old French word "francencens" which means high-quality incense¹³. In Arab-African countries and the Middle East, people chew this species for its essence. Whereas in some regions of Oman, people use frankincense smoke in perfumery products to house, clothes, and hair¹⁴. *Boswellia serrata* resin is popular as anti-inflammatory agent in the folk system of medicine for centuries^{15,16}. In traditional Persian system of medicine, the plant is used for many therapeutic purposes like for improving memory function and treating peptic ulcer, inflammatory bowel disease, diabetes. It is also used as a gastric tonic¹⁷. *Boswellia serrata* is one among those important medicinal plants which are used in traditional medicine system like Ayurveda to treat inflammatory diseases like osteoarthritis^{18,19}. The phytochemistry of *Boswellia serrata* is quite complex. The oleo-resin-gum of the plant contains gum, acid resin and volatile oils. The acid resin of *Boswellia serrata* contains a high amount of boswellic acids²⁰. Acetyl 11-keto- β -boswellic acid (AKBA) obtained from the oleo-gum-resin of *Boswellia serrata* is a great source of anti-



inflammatory drugs ²¹. *Boswellia serrata* phytochemicals are associated with wide range of therapeutic properties such as anti-arthritis, anti-oxidant, anti-diabetic, anti-cancer, hepatoprotective, nephroprotective, anti-bacterial, anti-plasmodium, diuretic, and analgesic. It also has a good impact on memory. Its volatile oils are used in paints and varnishes, soap and perfumery industry whereas resins are used in the printing ink, high class paints, soaps and cosmetics, coating materials, adhesives and in cultural rites and rituals ^{22,23}. Babylonians, Persians, Romans, Chinese, Greeks and old American civilization people also used it for embalming and its pleasing odor in cultural events ²⁴. *Boswellia* resins are also used in poultry production. Resins are used as phytobiotic in broiler chicken rearing because it increases the productivity and improves the quality of meat ²⁵. Due to several reasons, *Boswellia serrata* is now critically endangered or possibly extinct. Whereas 1969, a ban was enacted to conserve the plant species from overharvesting for gum resin in Madhya Pradesh which was later lifted in 2003. Also, the species become vulnerable in Chhattisgarh. It is observed that the *Boswellia* spp. of African origin have also been affected by the Indian scenario of *Boswellia serrata* species decline ²⁶. Vernacular names and taxonomic classification of *Boswellia serrata* are given in table no. 1 and 2.



Figure 1. *Boswellia serrata*

Table 1: Vernacular Names of *Boswellia serrata* ²⁷

English	Boswellia, Indian frankincense, Indian olibanum, Indian olibanum-tree
Hindi	Salai, Labana, Dhoop
Sanskrit	Kundur, Sallaki, Gajabhakshya
Assamese	Sallaki
Bengali	Luban, Salai, Salgai
Gujrati	Shaledum, Saleda, Saladi, Salai guggal, Gugal, Saledhi
Kannada	Adimar, Chitta, Gugula, Dhupa adimar, Chilakdhupa, Madimar, Chilakdupa, Tallaki, Maddi
Tamil	Parangi Sambrani
Telugu	Parangi sambrani, Anduga, Kondagugi tamu
Kashmiri	Kunturukkam, Samprani
Marathi	Salai cha dink
Punjabi	Salai Gonda
Urdu	Kundur

Table 2: Taxonomy of *Boswellia serrata* ²⁸

Taxonomic Rank	Taxon
Kingdom	Plantae
Subkingdom	Tracheobionta
Division	Magnoliophyta
Class	Magnoliopsida
Order	Sapindales
Family	Burseraceae
Genus	Boswellia
Species	serrata

Morphological Description

Boswellia serrata is a deciduous tree, of height 10-15 m, having green branchlets. The plant contains thin bark of greenish-grey, yellow or reddish color which eventually turns out into ash color and peels off in exfoliating papery sheets or flakes. The plant has many long tubular structured resin canals that spread vertically as well as horizontally in the tree. These resin canals are present throughout the tree but the bark has predominantly more resin canals than any other part of the plant. The young foliage of the plant is yellow or light brown whereas the leaves are long (about 12-42 cm) and have a greenish lower layer. There are 17-27 leaflets pairs. Veins have pubescent. The leaflets are oblong-lanceolate. The margin is present either entirely or crenate or wavy form. The tip of the leaves is obtuse or subacute. There are more than 16 pairs of secondary veins. The mid-vein is of a light reddish color. The panicles are 3-20 cm long and are shorter than leaves in little branched racemes. The pedicles are 2-4 mm long.

Peduncles and pedicles both are pubescent. The flowers of this plant are pinkish white. The petals and sepals of the plant are puberulous from the outside. The petals are ovate-oblong and 6-8 mm long and 3.0-3.5mm wide. There are 10 stamens that are inserted below the disc. The wall of the anther is not tuberculate. There is one ovule in each carpel. The style is about 2.1mm in length without any vertical groove. This plant has a brown or greenish drupe with 3- pyrenes, which are heart-shaped and have a single seed. The seeds are ovate-obovate or subcordate ^{29,30}.

Geographical Distribution of *Boswellia serrata*

Boswellia serrata is widely found in dry deciduous forests of India, Pakistan, North Africa, and the Middle East. In India, it is mainly found in Madhya Pradesh, Jharkhand, Andhra Pradesh, Orissa, Gujarat, Punjab, Assam, Rajasthan, and Karnataka ^{31,32}.

Phytochemistry of *Boswellia serrata*

Boswellia serrata plant has secondary metabolites such as glycosides, quinones, reducing sugars, steroids, terpenoids, fatty acids, tannins, saponins, coumarins, emodins, flavonoids, phenols and alkaloids. The plant is primarily known for its gum resin which is composed of a complex mixture of many phytochemical constituents. It contains essential oils, higher terpenoids and carbohydrates. The main essential oils of gum resin are α -thujene, sabinene, terpinen-4-ol, cis-carveol, chavicol, linalool, terpinyl acetate, terpinyl acetate, terpinyl acetate, β -copaen-4- α -ol and germacrene D etc. The GC-MS analysis of n-hexane essential oil fraction revealed the presence of esters, alcohols, monoterpenes and diterpenes. Other essential oils identified are β -eudesmene, γ -murolene, γ -cadinene, α -copaene, α -murolene, α -cubebene, α -cubebene, 3,5-dimethoxytoluene, 3,5-dimethoxytoluene, allo-aromadendrene, allo-aromadendrene, o-methyl anisole, β -gurjunene, β -gurjunene, camphene, eucalyptol, valencene, S-cis-sabinol, α -phellandrene, methyl chavicol, α -terpinolene, bornyl acetate, α -terpineol, d- α -thujene, d-limonene, p-cymene, and 1,2,3,4,6,8a-hexahydro-1-isopropyl-4,7-dimethyl. Whereas the higher terpenoid content of the plant is comprised of mainly pentacyclic triterpenes (boswellic acids), tetracyclic terpenoic acids and diterpene alcohols. The major Boswellic acids are β -boswellic acid (BA) (a triterpenic acid), 11-keto- β -boswellic acid (KBA) and corresponding acetates ABA and acetyl 11-keto- β -boswellic acid (AKBA). The BA and KBA are present as a mixture of isomers. BA is present with a diene derivative called as 3-O-acetyl-9,11-dehydro- β -boswellic acid. α -amyrin and 3-hydroxy-urs-9,11-dien-24-oic acid are also present in the gum resin. Tetracyclic terpenoic acids such as 3 α -hydroxy-tirucall-8,24-dien-21-oic acid, 3 α -acetoxy-tirucall-8,24-dien-21-oic acid, 3 β -hydroxy-tirucall-8,24-dien-21-oic acid and 3 keto-tirucall-8,24-dien-21-oic acid are also present in the gum resin. And diterpene alcohols like serratol and incensole are also present in this plant. Phytosterol like β -sitosterol is also present in the plant. The carbohydrate content of the plant

consists of disaccharides, oligosaccharides and polysaccharides. The major polysaccharides are arabinose, xylose and galactose. The GC/MS analysis of unsaponifiable matter of petroleum ether extract, revealed the presence of eicosane, heneicosane, tricosane, tetracosane, pentacosane, hexacosane, octacosane, triacontane, cholesterol and stigmaterol whereas GC/MS analysis of fatty acids methyl esters of petroleum ether extract showed the presence of caproic acid, capric acid, lauric acid, tridecanoic acid, myristic acid, myristoleic acid, pentadecanoic acid, palmitic acid, palmitoleic acid, margaric acid, stearic acid, oleic acid, linoleic acid, linolenic acid, arachidic acid, heneicosanoic acid, tricosanoic acid, tetracosanoic acid and nervonic acid ³³⁻³⁹.

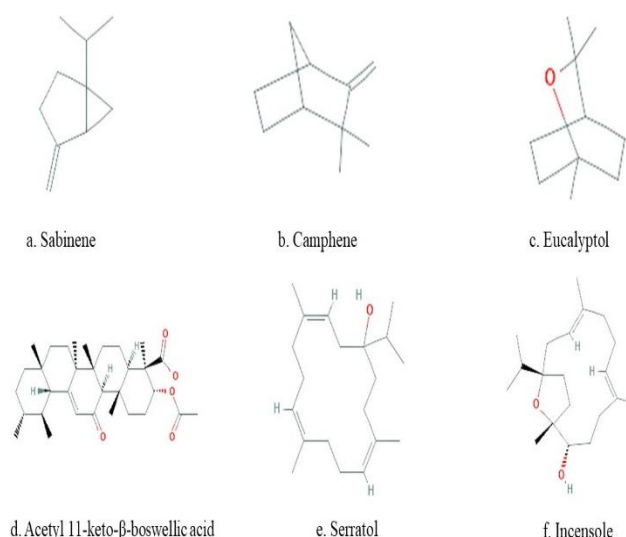


Figure 2: Chemical Structures of Some of the Phytochemical Constituents of *Boswellia serrata*

Traditional and Modern View

Ayurvedic View

Ayurveda is the most ancient traditional medicine system in India. It works on the enhancement of overall health and longevity. Ayurveda balances the body harmony by maintaining the equilibrium of the three body components/doshas of the body i.e. Kapha (water and earth), pitta (fire), and Vata (space and air). More than half of the Ayurvedic formulations are plant-based. These formulations have effective actions on consumer health ⁴⁰⁻⁴⁴. *Boswellia serrata* is an important plant in Ayurveda. It is known as Shallaki, Susravaa, Gajabhakshyaa, Salai, Gum-kundururu in Ayurveda ⁴⁵. It is used in many Ayurvedic practices to treat many diseases. It pacifies the Kapha and Pitta dosha of the body and mainly used to treat diseases related to these dohsas. Ayurvedic texts like *Sushruta Samhita* and *Charaksamhita* have mentioned the anti-arthritic and anti-inflammatory activity of *Boswellia serrata* ⁴⁶. Rasapanchak of *Boswellia serrata* is given in table no. 3.

Table 3: Rasapanchak of *Boswellia serrata* as per Ayurveda

Sanskrit/English	Sanskrit/English
Virya/Potency	Ushna/Hot
Vipak/Metabolic property	Kattu/Pungent
Guna/Physical property	Laghu/Light, Ruksha/Dry
Rasa/Taste	Kashay/Astringent, Tikat/Bitter, Madhur/Sweet

Actions and Properties of *Boswellia serrata* as Per Ayurveda^{47,48}

Sansthanik karam wahay: It is an anti-inflammatory, analgesic and anti-microbial agent. It prevents the foul smell, helps in wound healing and good for the eyes. It is used against osteoarthritis, goiter, chronic wounds, diabetes and eyes disorders.

Abhyantar naadi sansthan: It is a brain tonic and used to treat CNS disorders.

Paachan sansthan: It is an appetizer and laxative. It is used to treat indigestion, dysentery, diarrhoea, irritable bowel syndrome and piles.

Rakat wah sansthan: It is good for the heart health, strengthens the heart muscles and treats bleeding disorders.

Swasan sansthan: It treats chronic cough and asthma.

Mootrawah sansthan: It is a diuretic and used against dysuria.

Twacha: It induces sweating.

Taapkram: It is an antipyretic agent and used to treat chronic fever.

Folk View

Indigenous people have a very close association with the environment. They are well aware of the floristic wealth of their surroundings. They use natural resources in their own ways to derive maximum benefit from them. For instance, *Boswellia serrata* is used in many folk cultures to treat a variety of diseases. Some tribes of Sonaghati, Uttar Pradesh, use *Boswellia serrata* bark decoction to treat stomach pain. People also use a mixture of *Boswellia serrata* bark and *Lea crispa* root as an antidote to snake-bite. The use of *Boswellia serrata* gum as an ointment for sores has also been noticed⁴⁹. Tribals of Chinnar wildlife sanctuary, use dried resin as mosquito and germ repellent⁵⁰. People in Cuddapah District, Andhra Pradesh, use *Boswellia serrata* leaves in some formulations with *Andrographis paniculata* and goat's urine to treat edema⁵¹. In Dharapuram Taluk, Tamil Nadu, people traditionally use *Caesalpinia crista* fruit and seeds and *Boswellia serrata* resin in some formulations to treat hydrocoele⁵². In Sonbhadra, Uttar Pradesh, people use *Boswellia serrata* resin to treat rheumatic and joint pain. Resin is also used

as a hair tonic whereas they use leaves in wound healing⁵³. In Southern Rajasthan, gum is used to cure male impotency⁵⁴. People in Sonbhadra District of Uttar Pradesh, treat cold, cough, diarrhoea, dysentery, toothache and wounds with the bark, resin and leaves of *Boswellia serrata*⁵⁵. In Eastern Uttar Pradesh, people traditionally use *Boswellia serrata* as a blood purifier, anti-pyretic and antidiabetic. It is also against leukoderma and rheumatoid arthritis⁵⁶. The plant is also used as a remedy to headache⁵⁷. The mixture of gum resin and decoction of long pepper in mustard oil is used as hair tonic to improve the rate of hair growth⁵⁸.

Modern View

In the modern era, there are a lot of issues in the commercialization of herbal products due to insufficient guidelines of manufacturing and regulation of herbal products which give rise to undeclared pharmaceuticals^{59,60}. Adulteration whether intentional or unintentional is directly associated with quality degradation. The cases of species adulteration have been increased in the trading of herbal drugs⁶¹. Authentication of herbal products is important to assure their safety and efficacy and of course for their use in the discovery of novel drugs⁶². The advancement in time and technology has led to the discovery of the most reliable method for species identification i.e. DNA barcoding. This technique works on short and standardized gene regions for identification purpose. It works so efficiently and accurately that it gives resolution on species level. It is a quick method of identification of around 10 million different species of Earth. Thus, the technique provides quality access to the pharmaceutical and nutraceutical industries⁶³⁻⁶⁷.

Therapeutic Properties of *Boswellia serrata*

Boswellia serrata exhibits many important therapeutic properties. Some of its reported studies on therapeutic actions are summarized below:

Anti-inflammatory and anti-arthritis

Boswellia serrata is widely known for its anti-inflammatory activity. Various studies have been conducted to evaluate the anti-inflammatory activity of the plant. Each study has strongly supported the anti-inflammatory activity of *Boswellia serrata*. For instance, Kimmatkar et al., conducted a clinical trial on 30 patients suffering from osteoarthritis of knee to evaluate the anti-arthritis activity of *Boswellia serrata* extract (BSE). It was observed that the extract alleviated the swelling frequency in the knee joint and associated pain. Many other effective results were obtained at the end of the treatment⁶⁸. Another clinical trial on 260 patients of rheumatoid arthritis conducted by Etzel R., suggested that H15, a gum resin special extract is associated with effective anti-arthritis activity. It reduced the rate of erythrocyte sedimentation and morning stiffness. It also reduced the requirement of NSAID administration during the therapy⁶⁹. Umar et al., conducted an *in-vivo* study on collagen-induced arthritis male wistar rat models to evaluate the effect of *Boswellia*



serrata gum resin extract (BSE) against arthritis. The administration of BSE at the dosage of 100 and 200mg/kg body weight for the interval of 21 days, caused progressive changes in articular elastase, MPO, LPO, GSH, catalase, SOD and NO. A significant reduction in the levels of inflammatory mediators (IL-1, IL-6, TNF-, IFN-gamma and PGE2) and an increase in IL-10 level was noticed. At the end of the study the arthritis scoring was markedly reduced⁷⁰. Singh et al., suggested that topical application of Boswellic acids (BA) of oleo-gum-resin is an effective measure to get rid of arthritis inflammation. The topical application of BA in acute and chronic models of inflammation i.e., arachidonic acid and croton oil-induced mouse ear edema, carrageenan-induced rats paw edema and adjuvant-induced developing arthritis in rat models was found to be very effective⁷¹.

Anti-diabetic

As per Azemi et al., *Boswellia serrata* aqueous extract exhibits anti-diabetic activity. The administration of the aqueous extract at the dosage of 200, 400, and 600 mg/kg in diabetic rat models showed a significant decrease in blood glucose level which suggested that *Boswellia serrata* is a good source of anti-diabetic drug⁷². A successful clinical trial on 60 type 2 diabetic patients (30 males and 30 females) by Ahangarpour et al., suggested that *Boswellia serrata* gum resin is a preventive measure in controlling the disease. The patients were orally administered with *Boswellia serrata* gum resin at the dosage of 300 mg three times a day for 1.5 months. Many positive changes were noticed such as blood HDL levels were increased as well as cholesterol, LDL, fructosamine, SGPT and SGOT levels were reduced effectively⁷³.

Anti-obesity

Gomma et al., suggested that *Boswellia serrata* extract has the potential to treat obesity. The study was carried out in obese rat models. It was found that *B. serrata* effectively helped in the reduction of weight gain and weight of visceral white adipose tissue. It also reduced the levels of serum glucose, total cell (TC), triglyceride (TG), low-density lipoprotein cholesterol (LDL-C), free fatty acids (FFA), IL-1 β , TNF- α , insulin and leptin⁷⁴.

Anti-oxidant

As per Sharma et al., the aqueous extract of *Boswellia serrata*, is associated with anti-oxidant activity. The extract showed effective radical scavenging activity in 1, 1-diphenyl-2-picryl-hydrazyl (DPPH), nitric oxide, hydroxide, super oxide radical. The extract showed maximum reducing potential at the concentration of 500 mg/mL⁷⁵. Afsar et al., also reported the anti-oxidant potential of *Boswellia serrata*. The methanolic extract of the plant showed high reducing activities in DPPH assay and with increased in concentration, the extract showed more prominent radical scavenging activity⁷⁶.

Hepatoprotective

Kamath et al., evaluate the hepatoprotective property of *Boswellia serrata* in an *in-vivo* study. The models were artificially induced with liver damage by carbon tetrachloride, paracetamol or thioacetamide. It was observed that hexane extract of oleo-gum-resin of the plant at the dosage of 87.5 mg/kg p.o. helped in decreasing the elevated levels of serum marker enzymes and effectively worked on reducing liver weight in all the models⁷⁷.

Anti-bacterial

Bhatuda et al., evaluated the antibacterial activity of *Boswellia serrata* against bacterial strains such as *Escherichia coli*, *Staphylococcus aureus*, *Klebsiella pneumonia*, *Enterobacter aerogenes*, *Pseudomonas aeruginosa*, *Salmonella typhimurium*, *Salmonella typhi*, *Staphylococcus epidermidis* and *Proteus vulgaris* and suggested that methanolic extract of plant is strongly associated with the anti-bacterial activities. Methanol extract showed maximum inhibiting actions against *Staphylococcus epidermidis*, *Staphylococcus aureus* and *Salmonella typhi*. Moderate activity was noticed against *Escherichia coli*, *Pseudomonas aeruginosa*, *Enterobacter aerogenes*, and *Salmonella typhimurium*, whereas *Proteus vulgaris* was least inhibited by the extract. Thus, the study suggested that the plant can be a good source of anti-bacterial drugs⁷⁸. Fatimah I. Sultan reported that phenolic constituents of *Boswellia serrata* gum resin are effective against *Bacillus subtilis*, *Streptococcus pneumonia* and *Proteus vulgaris* bacterial strains. The inhibitory effect of phenols was much higher than that of fatty acids⁷⁹.

Anti-cancer

Bhusan et al., reported that a *Boswellia serrata* phytochemical named triterpenediol (TPD), is associated with anti-cancer potential. The results of their study showed that TPD caused apoptosis in human leukemia HL-60 cells which is measured by factors like elevated sub-G0 DNA fraction, DNA ladder formation, improved AnnexinV-FITC cell binding. It also caused inhibition of reactive oxygen species (ROS) and nitric oxide (NO) formation⁸⁰. Poornima et al., investigated the anti-proliferative activity of cinnamaldehyde derived from methanolic extract of *Boswellia serrata* against MCF-7 breast cell lines. The results indicated that cinnamaldehyde inhibited the growth proliferation⁸¹.

Memory enhancing property

As per Sharidfabad et al., aqueous extract of *Boswellia serrata* is associated with memory-enhancing properties. They conducted a study on male Wistar rat models (24 months old) to evaluate the effect of *Boswellia serrata* on spatial learning performance and dentate granule cell morphology. The results revealed that administration of aqueous extract intragastrically at the dosage of 100 mg/kg per day for 8 weeks effectively worked on memory enhancement and dentate granule cells size⁸². Mahboubi



et al., also suggested the memory enhancing actions of *Boswellia serrata*. They used scopolamine induced rat models to evaluate the combined effect of *Boswellia serrata* and *Melissa officinalis* on memory. The administration of extracts of both the plants at the dosage of 200, 400 mg/kg body weight showed effective actions on memory⁸³.

Diuretic

Asif et al., conducted an *in-vivo* study on albino rat models to evaluate the diuretic potential of *Boswellia serrata*. The administration of crude aqueous extract by intraperitoneal route at the dosage of 50 mg/kg, exhibited 44 % diuretic activity which showed that *Boswellia serrata* can be utilized as a potent diuretic⁸⁴.

Analgesic

Kar et al., performed an *in-vivo* study on albino rats to evaluate the analgesic activity of *Boswellia serrata*. Hot-wire and mechanical compression methods were employed in the rat models to induce pain. The results revealed that non-phenolic fraction of the plant exhibited analgesic effect⁸⁵.

Nephroprotective

Alam et al., studied the nephroprotective impacts of *Boswellia serrata* extract against gentamicin-induced nephrotoxicity in albino rat models. Methanol soluble fraction of the plant significantly exhibited protective actions against the nephrotoxicity⁸⁶.

Anti-plasmodial

Greve et al., suggested that dichloromethane extract of the oleo-gum-resin has potent anti-plasmodium activity. The dichloromethane extract fractionation led to the isolation of many compounds in which isoflindissone lactone showed most significant anti-plasmodial activity against *Plasmodium falciparum*⁸⁷.

CONCLUSION

Boswellia serrata is a globally recognized medicinal plant for its anti-inflammatory and anti-arthritis potential. It is the most common plant species used in the folk medicine system to treat a variety of diseases. It has also been mentioned in many Ayurvedic texts. *Boswellia serrata* gum resin has many uses including therapeutic as well as non-therapeutic. The present study has thoroughly explored each aspect of the plant i.e. distribution, phytochemistry, utilization in traditional systems of medicine and the therapeutic significance. From the study, it can be concluded that *Boswellia serrata* is a plant of great anti-inflammatory and anti-arthritis potential and can be the potent source of discovery of many important drugs. Also, this species is overexploited at a very fast range, so there is an immediate need to set up some preventive management practices. Also the supply of this species needs to be in a sustainable manner to avoid its endangerment.

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