

BRAHMA KAMAL: A REVIEW ON STATE FLOWER OF UTTARAKHAND

Yatendra Singh*^{1,2}, Pragati Kumar¹, Shashi Pratap Singh¹, Pranay Wal¹

¹PSIT-Pranveer Singh Institute of Technology (Pharmacy), Kanpur - 209305

²Adarsh Vijendra Institute of Pharmaceutical Sciences, Shobhit University, Saharanpur- 247341

*Corresponding Author: Yatendra Singh¹

PSIT- Pranveer Singh Institute of Technology (Pharmacy), Kanpur - Agra - Delhi National Highway - 19 , Bhauti - Kanpur - 209305, India

Phone No. +91 9936334550

E-mail: yatendra.chandel@gmail.com

ABSTRACT:

Brahma Kamal (*Saussureaobvallata*) is a jeopardized restorative herb of the high-altitude Himalayan region with enormous traditional importance. Brahma Kamal and their related family member are situated in Himalaya. Flower of this family sprout during mid-monsoon months among the stones and grasses of elevated glades and crevasses. These amazingly uncommon plants are well known for their lovely flower, yet additionally for their huge significance in customary medication. Traditional Indian literature shows that these medicinal plants have been in use for managing illness since Vedic period. The emergence of herbal revival in modern era has led to massive exploitation of these medicinal herbal flora from the wild. Continuous desertification and unrestrained grazing pressure in high-altitude Himalayan pastures threatens the endurance of some significant therapeutic plants, one of them is Brahma Kamal. This review article is an endeavor attempt to document diverseness, dispersion, spatiality, traditional and pharmacological uses of these important plants.

KEYWORDS: *Saussurea*, Traditional claims, diversity, distribution, conservation.

INTRODUCTION:

The mountains of Himalayan is wealthy in plant assorted variety, having many mythological and ancient plants. *Saussurea obvallata* (*S. obvallata*), is famously known Brahma Kamal. Its name is related to Brahma the Hindu supreme being of existence. This flower is crowned headed over all Himalayan flower. *S.obvallata* generally sprouts in snow-capped Himalayan region – at the upper prominence of the mountain pinnacle ranges 4600–5600 meter. Some variety of *S.obvallata* is also exist in Myanmar and some southwestern region of China.

Brahma Kamal is holy flower for many, and an individual who has spotted it sprout is considered to be very fortunate. The importance of ‘Brahma Kamal’ is documented in the ancient Hindu and other religion books. As per Hindu folklore, 'Brahma Kama' is related to birth of Lord Brahma. This ancient holy flower is also related to origin of lord Ganapati. In text of Ramayana and Mahabharata is clearly described it as holy flower^[1].

TAXONOMY:

Saussurea obvallata and other comparative species have a place with the Cynareae clan of the dicotyledonous family Asteraceae with the particular conventional name Saussureae^[2]. Saussurea is biggest variety in the Asteraceae family. It contains more than 400 species that are situated in some extreme cold hilly region of Asia, Europe, and North America. Some species Saussurea has most noteworthy. These are grown in extreme cold climatic condition of Himalaya and Central Asia. ‘Saw-wort. and ‘Snow Lotus’ are famous common name of plants under Saussurea^[3].

Some endemic Indian species of *Saussurea* such as *S. obvallata*(Brahma Kamal), *S. gossypiphora*(Kasturi Kamal), *S. simpsoniana*(Phen Kamal), *S. tridactyla*(Snow Lotus) and *S. graminifolia* (Grass-leaved Saw-wort) are chosen to summarize article. They are sharing some common taxonomical important morphological features^[5].

DISTRIBUTION:

S. obvallata is mainly grown in alpine tundra, cliffy hills, river bank and lagoons slides between rocks. In our country *S. obvallata* and its related species are grown in great Himalayan ranges of

Kashmir, Uttarakhand and some northeastern region. In India, its eminence population is present at Sikkim in northeast India, Kashmir vally, Pauri Garhwal, Gopeshwar and Chamoli, and Hemkundsahib, at above 3500–4600 meter. Outside India, *S. obvallata* also originated in Burma, Bhutan, Nepali mountains, Tibetregion, and Pakistan^[1].

S. gossypiphora grows mainly on shadowy humid mountainous slide at height of 4200–5600 meter in Leh Ladakh, Tibetan region, Himanchal Pradesh, Spiti and Lahaul, Pauri and northeastern Sikkim. *S. gossypiphora* also grown in Tibetan Plateau, Burma, Nepal and south western prominence of china^[1, 7].

Presence of *S. simpsoniana* is observe in dry stony slides and alpine screes particularly at a height of 4100 to 5800 meter. Existence of *S. simpsoniana* is limited to great Himalayan ranges from Kashmir, Uttarakhand, Himanchal, and Sikkim in India, Tibetan Plateau, Burma, Nepal and south western prominence of china.

Presence of *S. tridactyla* is observe up to height of 5200 meter – particularly alpine mountainous screens and non-humid rocky slides. Its presence is limited to Burma, Tibet and some Nepali region. *S. graminifolia* prefer 3400 -5700 meter height to grown in high-mountain meadows with agricultural field in Pindari and Phurkia region in Kumaon and in Kashmir valley. It also found in china, Burma and Nepal^[1,5].

BOTANICAL FEATURES:



Fig.1:Saussureaobvallata plant in flowering and bloom usually in July–August.

Saussureaobvallata (Brahma Kamal) is 15–45 cm long, a perennial plant (Fig.1) with stout stem^[12], 15–45 cm long. From July - august to mid of October is favorable time to bloom flower

after that blossom decays naturally and again appears in April^[6]. Blossoms look very pretty but smell nasty due to this individual does not prefer to bring it in their houses. Papery bracts shield the head of flower. Purple flower is present in umbel structure, each is one to two centimeter long and is originated with specialized bract with blackish margin^[14]. *Saussurea obvallata* leaves are ovoid to blunt shape with lanceolate structure. Lower portion of their leaf is dense stalked and specialized half-clasping structure constitute in top of the leaf. Perennial stoutly stem of *Saussurea obvallata* is fifteen to forty five centimeter long^[15].



Fig.2: *S. gossypiphora* is a perennial plant; flowers look gorgeous and growing on moist rocky slopes.

Duration from July to September is very important for *S. gossypiphora* survival (Fig.2). Dense cluster of flower is situated at upper portion of the stem. Cylindrical purple blossom florets is one to two centimeter long and woody hairs surrounds the disk florets. Leaves are straight and denticulate at margins and presents with woody hairs. *S. gossypiphora* stem is ten to fifteen centimeter long with stout structure. Leafy club shaped structure also present at stem. Flower is appears as snow white ball^[1].



Fig.3:*S.simpsoniana* flower looks purple, wooly texture present outside.

Blossoming duration for *S. simpsoniana*(Fig.3) is July to October end. Purple blossom is having many disk shaped structured. Greyish white wooly hairs is another characteristic of the species. Dwarf stem is five to eight centimeter long. Leafs are untied, straight lanceolate, ten to fifteen centimeter long, loosely denticulate.

August to October end is best time to grow *S. tridactyla*. Dark purple colored blossom is surrounded by matty hair wools. Leafs are narrow ovoid structure and one to three centimeter long. Stem is seven to fifteen centimeter in length with hollow structure. August to October end is best time to grow *S. tridactyla*. Dark purple colored blossom is surrounded by matty hair wools. Leafs are narrow ovoid structure and one to three centimeter long. Stem is seven to fifteen centimeter in length with hollow structure.

S. graminifolia (Fig.4) blossoming time is July to September last. Its stem is small with six to fifteen centimeter in length. Leafs are one to two millimeter in width and with enlarge papery bottom. Lower end of the leaf is end of the leaf is hairless glossy structure. Rootstocks is surrounded by matured leafy structured. Stem Solidarity holds many purple floweret surrounded by white leafy structure.

**Fig.4:*S. graminifolia*is a small perennial plant with enormous medicinal values.****ECOLOGY AND ENVIRONMENT:**

Great Himalayan region is most delicate and endangered ecosystem of the nation. Winter and summer are main season of region. Winters are extremely cold and months long while summers

are small and cold. This climatic condition affects alpine climate. It became cool and dry at high elevation and become humid low elevation. Atmospheric weather condition is frequently changes in this region. This region is mostly snow covered throughout the year. Sudden Rain, snow and wind storm is an event of everyday. Atmospheric condition is extremely unpredictable here. As the height increase air become more swift, dry and fine.

Great Himalayan region is categorized in Eastern and the Western zone. Both region contains very rich floristic resource. More than ten thousand plant species are originated here and it is home for fifty present plant biosphere. Although all region of this alpine habitat are mostly snowy desert with stony rocks ruthless atmospheric condition. Because of which very few are able to grow here. They have to survive with extreme cold freezing weather condition, snow storm and to a little growing season. Species related to genus *Saussurea* survived here are five to eleven centimeter in height, midget and originate short to the base^[5].

Saussurea leaves are developed in base with a thick rosette structure, and winding up the blossoming stem. The blossoms structure in a thick head of little capitula, frequently totally encompassed in papery bracts or in thick white to purple wooly hairs. The wooly hairs are thick and help in thermoregulation of the blossoms limiting ice harm at evening time, and furthermore forestalling UV harm from the extraordinary high elevation daylight^[7].

USES IN TRADITIONAL MEDICINE AND FOLK PRACTICE:

The natives of the upper hilly region of great Himalayan region are familiar to different species of *Saussurea*. These are very valuable medicine in Tibetan culture. However very enormous traditional medicinal values its clinical effectiveness is not proven in many aspects. The whole plant of *S.obvallata* can be used for management of many fatal disease. In folk medicine it is popularly used as liver tonic. Its bitter taste also makes it an excellent appetizer. In Tibetan culture, Extracts made from *S.obvallata* popularly used to treat inflamed liver and also help to rise blood level. Plant soup is beneficial to treat various disorder related to urinary system. Sexual transmitted diseases and some chronic urinary system disease is also effectively managed by Brahma Kamal in Himalayan system of medicine. It is powerful antipyretic medicine^[8]. Whole plant is useful to manage bone pain, intestinal disorder and seasonal cough and cold. It is

effective to managed Ecchymosis and wound due to is strong antiseptic action. Plegia and cerebrovascular ischemia is managed by Brahma Kamal in folk Amchi medicine system^[12].

S. gossypiphora plants is having blood clotting as mention in folk Tibetan literature due to this its flower is used stop blood after injury. *S. gossypiphora* (Kasturi Kamal) also having potential to treat menstrual cramp, skin disorder, rheumatic ailment, pulmonary disorders and hysteria^[14].

S. simpsoniana is very effective to manage all types of nervous disorder, cough and cold, Leukorrhea and other sexual disorder. It is aslo very good blood detoxifier. Its root soup is effectively manage snake bite and menstrual cramp.

S. tridactyla naturally contains a flavone „acacetin“. Its soup is very good energy source. In Tibetan system, it is popularly used for management of osteoarthritis and painful mentrualm period.

S. graminifolia is very good remedy for cough cold, improve sexual impotence, stimulate menstruation, and detoxifier. It is some time effective in treatment of vaginal discharged, disturbed menstrual cycle, and bleeding from cuts.

S.obvallata represents great sacred values of Hinduism, due to this Uttarakhand government declared *S. obvallata* as flower of satae^[9]. This sacred flower is used in offering of prayer in famous Hindu shrine of Baba Kedar Nath and Badrinarayan temple. „Nanda Astami“ is popular festival of Uttarakhand during which this flower is offered to „Devi Nanda“ to prosperity of the world. It is believed that *S. gossypiphoram* protects us against wicked souls. Its root oil is used to make world“s most expensive perfumery and also very good hair oil. The base of *S. simpsoniana* is to protect winter fabrics from insects^[15].

CONSERVATION STATUS:

All aforementioned plant species are restricted some particular region of the world. These plant species are completely endemic and immediately required conservation. Anthropogenic steps from society endangers *S.obvallata* and *S. simpsoniana*. Whereas critically endangered status is reported for *S.gossypiphora* by some research. *S. tridactyla* and *S. graminifolia* are exist as extremely rare species^[10].

Due to its medicinal property, mythological and sacred recognition *S. obvallata* and *S. gossypiphora* are harshly collected by local natives and traveler. This sinister acts creates alarming situation for existence of *S. obvallata* and *S. gossypiphora*. These plans represent our culture and true values of humanisms. Immediate regulations is required to conserve them.

Some locals from Himalaya region are involved in smuggling of these sacred plants to China. Which is biggest market for these plants. Government has stepped out some necessary steps but these are completely insufficient to stop smuggling. These plant species are categorized in ‘Appendix I’ of CITES (Convention of International Trade in Endangered Species of Wild Fauna and Flora). Ministry of Commerce, Government of India also put it in negative list of import. Its smuggling criminal offence as pre Wildlife Protection Act of India ‘Schedule VI’^[1- 2].

CONCLUSION:

However, despite all the altruism, the legislature has not taken appropriate strides to protect these imperiled species. Unscrupulous use and illegal business of species for their commercial benefits, high consumption in worshipping unchecked the travel industry, disturbance of ecosystem of mountains due to tourists, annihilations of normal populaces because of uncontrolled development of settlements etc., are few factor which is responsible for senility of plants. If these bluster is continue then this sacred plant will fail to endure in upcoming future.

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CONFLICT OF INTEREST:

The authors declare that there is no conflict of interest.

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