MONTH: JULY: AUGUST 2014
VOLUME: 2 ISSUE: 4
ISSN: 2348 – 1846

PunarnaV

AN INTERNATIONAL PEER REVIEWED AYURVED JOURNAL
ON LINE BI-MONTHLY AYURVED JOURNAL
www.punarnav.com
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A REVIEW ARTICLE ON *BANAFSHA* (VIOLA ODARATA LINN.)

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ABSTRACT:

Herbs have been the highly esteemed source of medicine throughout human history. They are widely used today indicating that herbs are a growing part of modern, high-tech medicine. About 25-30 percent of today's prescription drugs contain chemical constituent derived from plants. The Indian system of medicine i.e. Ayurveda has a long-standing tradition that offers a unique insight into comprehensive approach to Respiratory disorders through proper care of the respiratory tract. Vanapsika(Viola odorata Linn.) is a Herbal drug belongs to Violaceae family, possess Madhura Rasa, Sheeta Veerya & Madhura Vipaka[1]found in cold climatic area like Kashmir & Himalayas, because it naturally reduces kapha from the body & balance the environment. The Viola odorata Linn. has also been suggested to posses, antimicrobial, antioxidant, antitumor activity. The main aim of this article is to highlight the latest review of scientifically proved medicinal activity of Viola odorata Linn. against various disorders.

Keyword: Ayurveda, Antimicrobial, antioxidant, Antitumor, Respiratory disorders, Vanapsika, Viola odorata Linn.

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INTRODUCTION

Nature is a biggest depot of natural therapeutic medications to cure aliments of mankind. Medicinal plants are the important key foundations of natural therapeutic medications for healing numerous kinds of diseases. These

medicinal plants are rich in medicinal properties and hence they have been used since centuries for the sake of human health. A huge mass of tribal peoples in India were dependant on traditional system of medicine for maintaining their health not only physically but also psychologically too. Thus indigenous knowledge of traditional health system possesses an imperative role in the life of tribal peoples of India. Traditional medicine take in all kinds of folk medicine, unconventional medicine and indeed any kind of therapeutic method that had been handed down by the tradition of a community or ethnic group. Ethno botany, the interaction between plants and people involves traditional use of medicinal plants by indigenous communities and management of plant diversity by the aboriginals. Traditional herbal medicine is readily available in rural areas for the treatment of a wide spectrum of diseases. These traditional medical systems are generally based on the uses of local and biological resources located nearby their dwelling places. The World Health Organization (WHO) defines traditional medicine as "The health practices, approaches knowledge and beliefs incorporating plant, animal and mineral based medicines, spiritual therapies, manual techniques and exercises, applied singularly or in combination to treat, diagnose and prevent illnesses or maintain wellbeing".

Viola odorata is used as a ethnobotonical plant. It is a species of the genus Viola, native to Europe and Asia, but has also been introduced to North America and Australia. It is commonly known as sweet violet,wood violet, violet, English violet, common violet, florist's violet, or garden violet. The plant is known as *Banafsa, Banafsha or Banaksa* in India. Whole plant of *Viola odorata* used for medicinal purpose.

GEOGRAPHICAL SOURCE:

Sweet violet is indigenous to India and found in Kashmir (Kangra), Himachal Pradesh (Chamba), and Kumaon hills.

Banafsha is a perennial plant, cultivated

only in gardens. Its cultivation is also undertaken in hilly regions of North India. Its grows quite satisfactorily in cool and moist climatic conditions. It does not survive on exposure to heavy rains. Its propagations can be done either by cutting or with seeds. Drug is naturally found at an altitude of 1500-1800 m.

MACROSCOPIC CHARACTERS:

Banafsha is a glabrous or pubescent herb, about 15 cm in height. Its root stocks a very stout and stolons are cylindrical. Leaves are dark green, tough, broadly ovate or cordate in shape with crenate margin, grow in a rosette at the plant's base. They are 1.5 – 5 cm in size. Flowers are solitary, auxillary forming central flowering rosettes. Flowers are very beautiful in colour. They are deep violet in shade with bluish-white base. Flowers are sweet, scented and which is why the plant is cultivated in gardens as an ornamental crop. Fruits are in the form of capsules, round, three angled and often purplish in colour. The plant blooms in second year.

The drug *Banafsha* in the market is available in different forms, which constitute various aerial part of plant.

1.*Kashmiri banafsha* – Aerial parts like stems, leaves and flowers.

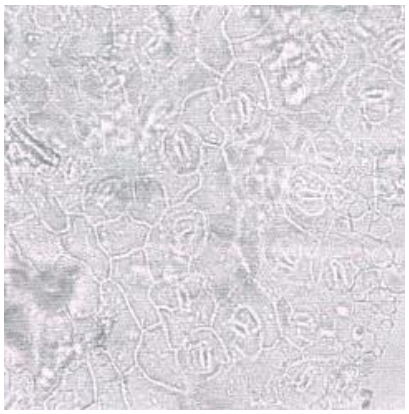
2.*Gul-i- banafsha* – Only dried flowers.

3.*Berg banafsha* – Aerial parts without flowers.

For medicinal purposes, plant is collected from April to July.[2]

MICROSCOPIC DESCRIPTION:

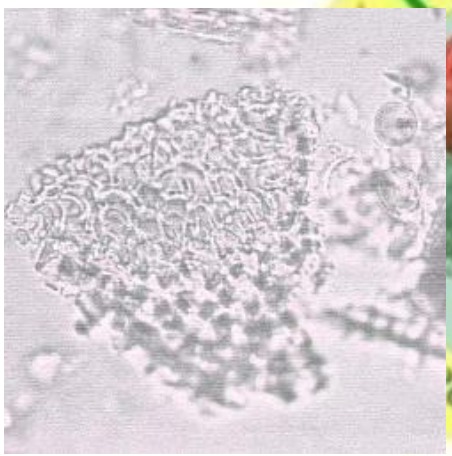
The leaf epidermal cells have sinuous anticlincal cell-walls. Attached covering trichomes are unicellular, thick-walled and heavily warted. The stomata are of the anisocytic type and are mainly found in the lower epidermis. The mesophyll cells contain rosettes of calcium oxalate in a crystal layer while micro rosettes of calcium oxalate are scattered in other cells. Petals have a striated cuticle and regularly arranged polygonal papillose epidermal cells which occasionally extend to form smooth-walled unicellular covering trichomes. Calcium oxalate resettes are found mainly at the base of the petals and the micro resettes are found uniformly scattered.[3](a) Surface view of the lower



epidermis of the leaf showing the epidermal cells with their sinuous cells and anisocytic type to stomata. The spongy

mesophyll cells are partly shown (right).

(b)A detached large unicellular conical, thick-walled, heavilywarted covering trichome of the leaf.



(c) An oblique surface view of the upper epidermis of the petal showing the characteristic papillose cells. Also shown are a pair of spherical pollen grains.

CHEMICAL CONSTITUENTS :

Plant yields saponins, salicylates, alkaloids, flavonoids, saponins, tannins, phenolics, coumarins. Phenolic glycosides, gaultherin, violutoside, saponins, flavonoids, odoratine. The flowers contain a colouring matter and traces of a volatile oil, three acids (one red, another colorless, and a third salicylic acid), and an emetic principle called violin, probably identical with emetine, violaquercitrin, closely related but not identical with, quercitrin or rutin, and sugar. The violin is supposed to be found in all parts of the plant.The flowers contain a glucoside and methyl salicylic ester. The seeds & Roots yields salicylic acid, viola-emetin, a glucoside. Leaves yield two crystalline bodies, one glucosidal and the other alkaloidal in character, and a dark green oil.

MEDICINAL USES :

Young leaves and flower buds of *Banafsha*, raw or cooked. Leaves make it a good salad. Leaves and flowers used for tea. Decoction of *Banafsha* root is a strong emetic; in large doses, the roots and seeds are poisonous. Its Poultice or compress of fresh leaves for inflammation and pruritic skin diseases. Fresh leaves of *Banafsha* have been used internally and externally in the treatment of cancer. Decoction of leaves, 4 to 5 glasses daily; poultice of leaves externally, infusion of leaves, syrup made from petals, or a liquid extract of fresh leaves used for cancer of the throat and tongue. In other countries, used for breast and lung cancer. Flowers of *Banafsha*, used dry, valued as diuretic and expectorant, and as purgative in bilious

disorders. Also used as antipyretic and diaphoretic. In Sind, flowers used as anodyne. Decoction of dried flowers used for fever. Syrup of the violet is used for cough and hoarseness. Seeds are used as purgative and diuretic. Plant poultice also used for headaches, coughs, colds, bronchitis, nervousness and general debility. In South Africa, leaves chewed as anticancer. Essential oil from flowers used in perfumery. Pigment extract from flowers used for litmus testing strips.Makes excellent ground cover.

CULTIVATION:

Succeeds in most soils but prefers a cool moist well-drained humus-rich soil in partial or dappled shade and protection from scorching winds. When grown in the open it prefers a moderately heavy rich soil.[4]

PROPAGATION:

Seed - best sown in the autumn in a cold frame. The seed requires a period of cold stratification and the germination of stored seed can be erratic. Prick out the seedlings into individual pots when they are large enough to handle and plant them out in the summer. Division in the autumn or just after flowering. Larger divisions can be planted out direct into their permanent positions, though we have found that it is best to pot up smaller divisions and grow them on in light shade in a greenhouse or cold frame until they are growing away well. Plant them out in the summer or the following spring.

RESEARCH UPDATE OF VIOLA ODORATA LINN. :

1] A novel suite of cyclotides from *Viola odorata*:

Cyclotides are a fascinating family of plant-derived peptides characterized by their head-to-tail cyclized backbone and knotted arrangement of three disulfide bonds. This conserved structural architecture, termed the CCK (cyclic cystine knot), is responsible for their exceptional resistance to thermal, chemical and enzymatic degradation. Cyclotides have a variety of biological activities, but their insecticidal activities suggest that their primary function is in plant defence. Although the native function of cyclotides in plants is thought to be one of defence against insect pests and pathogens [5-6] ,a wide variety of biological activities are observed throughout the family. These include uterotonic, insecticidal, anti-HIV, antimicrobial, antineurotensive, cytotoxic and haemolytic activity [7-13]. In this study, determination of the cyclotide content of the sweet violet *Viola odorata*, a member of the Violaceae family, done. 30 cyclotides were identify from the aerial

parts and roots of *Viola odorata* plant.

2] Anticancer and chemosensitizing abilities of cycloviolacin 02 from *Viola odorata*:

Cycloviolacin O2 (CyO2), a cyclotide from Viola odorata (Violaceae) has antitumor effects and causes cell death by membrane permeabilization. In the breast cancer line, MCF-7 and its drug resistant subline MCF-7/ADR, the cytotoxic effects of CyO2 (0.2-10 microM) were monitored in the presence and absence of doxorubicin (0.1-5 microM) using cell proliferation assays to establish its chemosensitizing abilities.[14]

3] The Antibacterial and Phytochemical Aspects of *Viola odorata* Linn. Extracts Against Respiratory Tract Pathogens :

In this study, evaluation of the antibacterial activity of various extracts of *Viola odorata* against selected respiratory tract pathogens i.e. *Haemophilus influenza* MTCC 3826,*Pseudomonas aeruginosa* MTCC 2474, *Staphylococcus aureus* MTCC 1144, *Streptococcus pneumoniae* MTCC 655 and *Streptococcus pyogenes* MTCC 442 done. The antibacterial activity was examined by agar well diffusion method and the minimum inhibitory concentration.[15]

CONCLUSION

Plants have been used for the treatment of diseases throughout the world since the beginning of civilization. The vast survey of literature showed that *Viola odorata* has a broad spectrum of pharmacological activities. It has an esteemed status in herbs with diverse biological potentials and has a great scope for further new area of investigations. It is rich in many phytoconstituents such as, saponins, salicylates, alkaloids, flavonoids, saponins, tannins, phenolics, coumarins. Phenolic glycosides, gaultherin, violutoside, saponins, flavonoids, odoratine & volatile oil, that are useful in drug designing. Because of the vast properties of Banafsha, it has found medicinal applications from respiratory disorders to tumor- suppression and cancer. It is an ethnobotanical herb of India. Ethno botany, the interaction between plants and people involves traditional use of medicinal plants by indigenous communities and management of plant diversity by the aboriginals. It holds a special position as a potent adaptogen and aphrodisiac in Ayurvedic System of Medicine. Conclusion of this Studies, the *Viola odorata* have been use in therapeutics.

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