



A flower of immense medicinal value: *Viola odorata* (*Gul-e-banafsha*)

Aafreen Afzal¹, M A Jafri², Shahid S Chaudhary^{3*}

¹ P.G. Scholar, Department of Ilmul Advia and Ilmul Saidla, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India

² Professor, Department of Ilmul Advia and Ilmul Saidla, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India

³ Assistant Professor, Department of Ilmul Advia and Ilmul Saidla, School of Unani Medical Education and Research, Jamia Hamdard, New Delhi, India

Abstract

Herbal medicines are getting significant attention in global health debates. *Gul Banafsha* is the flowers of the plant *Viola odorata* Linn. commonly called as “sweet violet” belongs to Violaceae family and has been in use since antiquity, for treating several diseases both in Unani and in Ayurvedic systems of medicine. *Banafsha* is available in three forms as the dried aerial parts of the herb, only the dried flowers, and the aerial parts without flowers. Almost all these parts are used for medicinal purpose, and it has been proven as, diuretic, anti-asthmatic, anti-dyslipidemic, antihypertensive, sedative antibacterial, antidiabetic, antimicrobial, anti-inflammatory, antioxidant, antipyretic, hepatoprotective, anticancer, laxative, cytotoxic, anti-tubercular, and antifungal properties. It is used as a single drug or as an ingredient in various formulations viz. Syrup, decoction, infusion, confection, semisolid preparations, oil and pill. The present review was undertaken to assimilate the effort to explore the knowledge and comprehensively highlight the herb *Viola odorata* possess multidisciplinary actions in human body.

Keywords: banafsha, sweet violet, unani, viola odorata

Introduction

Flowers of *Viola odorata* Linn. (Fig. 1) is used in the Unani system of medicine and known as Gul-e-Banafsha. It is one of the largest genus in the family Violaceae consists of 525-600 species in the world. The plant is cultivated in West Bengal and Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, Meghalaya, Nagaland, Manipur, Kangra & Chamba in Himachal Pradesh, Ganjam hills in Orissa, Kumaun Hills, Nilgiris and Palani hills. The plant is found in Kashmir and other parts of the western Himalayan regions at attitudes of 1500 to 1800 meter. In Indian market two forms of *Viola odorata* are available i.e. *Gul-e-Banafsha* (violet flowers) and the plant (Kashmiri Banafsha). Physicians consider the purple flowered variety to the best and use flowers and whole plants separately. *Viola odorata* L. is the source of original variety of *Banafsha* but drug available in market is adulterated with other *Viola* species viz. *Viola Biflora*, *Viola cinerea*, *Viola sylvestris*, *Viola pilosa* and *Viola canescens*. A long account of its properties is found in most Arabic and Persian works on materia medica, it is used as *Munaffith-i-Balgham* (expectorant), *Mushil* (Purgative), *Munawwim* (Hypnotic) and *Mudirr-i-Baul* (Diuretic) etc. According to Unani physician, *Banafsha* has two varieties i.e., *Jangli* (wild) and *Bustani* (cultivated) and both have same morphological character as well as therapeutic uses. The Great Unani physician Dioscorides had started the use of herb as medicine and from his works the Arabs probably became acquainted with its properties.

Unani description

It is a herb which is cultivated as well as grows widely. It consists of dried flowers of *V.odorata* Linn. and attains

about 15 cm height [16, 17], arising from a rootstock. Leaves are similar to pomegranate and Hena [1]. Flowers are usually light blue in colour having strong fragrant [1]. There are many flowers of different colours like, blue, light blue, yellow, red, and multiple colour¹. It is found in Kashmir, and other part of western Himalayan regions at an altitude of 1500 to 1800m. Flowering and fruiting takes place during April to July [1, 2].

Geographical Distribution [2, 34, 35]

Viola odorata Linn. found in Jammu & Kashmir in India and cultivated in West Bengal, Gujarat, Andhra Pradesh, Karnataka, Tamil Nadu, Meghalaya, Nagaland, Manipur, Kangra & Chamba in Himachal Pradesh, Ganjam hills in Orissa, Kumaun Hills, Nilgiris and Palani hills in Tamil Nadu at an altitude of 1500 to 2000m. This species is globally distributed from Africa to Eurasia and commonly found North-West Asia, Europe, Nepal and North Africa.

Scientific Classification [3]

Kingdom: Plante

Order: Malpighiales

Family: Violaceae

Genus: Viola

Species: Odorata

Botanical name: *Viola odorata* Linn.

Vernacular Names [2, 4, 20, 21, 22]

Arabic: Banafsi, Banafsaj, Behussej, Firfeer Banajsaj

Sanskrit: Jvarapaha, Sukshmapatra

Urdu: Banafsha, Banafshah, Gul-e-Banafsha

Tamil: Vialettu, Vialethoo
Kanada: Viollethoo
English: Violet, Wild Violet
Hindi: Banafshah

Macroscopic ^[2, 6]

Leaves are roundish cordate, pedicel; about 12 cm long, thin and wiry. Flowers are axillary, solitary, about 0.5cm broad and 1cm long, bluish, purple, on drying turn to light yellow, bisexual, zygomorphic, hypogynous, pentamerous, polypetalous, unequal. The pollen grains are smooth thin walled spherical and have single germ pore. Sepals are five, Ovate or obtuse. Petals are five, blue or white sweet scented, Stigma hooked, pointed, horizontal, naked, capsules turgid, hairy, seeds; turbinate, Adroceum: 5 stems, Gynoecium; 3 carpels which is syncarpous.

Microscopic ^[2, 6]

Petiole on transverse section shows an adaxial ridge and distinct lateral wings, epidermis single layered, followed by three layers of collenchymas, cortex parenchymatous, calcium oxalate present in the cortical cells, Vascular system appearing deeply cup shaped, phloem surrounding the xylem. Epidermis is followed appearing deeply cup shaped, phloem surrounding xylem. Epidermis is followed by 3-4 layers of parenchymatous cell arranged with intercellular spaces.



Fig 1

Mizaj (Temperament) ^[6, 7]

Cold 1st grade and Moist 2nd grade
 Cold 1st grade and Moist 1st grade ^[18, 19]
 Cold 2nd grade and Moist 2nd grade

Hissa musta'mila (Parts used) ^[8]

Flower and leaves

Miqdare khurak (Dosage) ^[6, 7, 23]

Flowers 10gm - 20gm
 The maximum allowed dose is about 20 grams (about 250 mg/kg) of dry flower per dose in Iranian traditional medicine.
 Joshanda; 7 g to 14 g

Murakkabat (Formulations)

Sharbat Banafsha ^[2, 8, 27, 28]
Sharbat Ejaz ^[2]
Dayaqooza ^[2]
Majoon-e-Antaki ^[2]
Mufarreh Yaqooti barid ^[2]
Raughan-e-Banafsha ^[2, 27]
Safoof-e-Banafsha ^[27]

Qarooti Mohallil ^[2]

Mazarrat (Adverse effects) ^[6, 8]

Zukam (coryza), *Karb* (distressing pain of stomach), *Istirkha-e-Meda* (gastromalacia), for persons having cold and moist temperament.

Musleh (Correctives) ^[6, 7]

Marzanjosh (*Origanum majorana*), *safarjal*

Badal (Substitutes) ^[6]

Nilofar (*Nelumbo nucifera*), *Barg-e-Khubbazi* (*Malva sylvestris*), *Gaozabaan* (*Onosma bracteatum*), *Mulethi* (*Glycyrrhiza glabra*)

Pharmacological actions and indications in Unani system of Medicine: ^[9, 10, 11]

Mohallil-e-warm (Anti-inflammatory)
Daf-e-suda'a (Relieve Headache)
Daf-e-sara (Anti Epilepsy)
Daf-e-Nazla (Anti catarrh)
Daf-e-sual (Cough suppressant)
Daf-e-khunaq (Relieve Diphtheria)
Daf-e-zat-ur-ria (Relieve Pneumonia)
Dafa-e-sarsam (Relieve Meningitis)
Musakkin e Alam (Analgesic)
Mudir-e-Baul (Diuretic)
Mulattif (Demulcent)
Moarriq (Diaphoretic)
Dafai e waja-ul-Kuliya (Relieve Renal colic)

Chemical Constituent ^[2, 4, 12, 13, 22]

Alkaloid Violine, Beta-ionones, Beta-setosterol, Methyl salicylate, Glycosides, Saponins, Mucilage, Vitamin C, Limonene, Pentadecanoic acid, Phenolics, Coumarins, Gautherin, Violutoside, Anthrocyenin, Sterols, Potassium, Magnesium, Sodium, Iron, Flavonoids, Eugenol, Tannins, Friedelin

Pharmacological Actions

Antipyretic activity ^[12, 25]

Chloroform and water-soluble extract of *V. odorata* has produced a significant antipyretic activity in rabbits.

Antibacterial activity ^[13]

Extract of *V.odorata* has shown antibacterial activity against respiratory tract pathogens i.e. *Haemophilus influenza*, *staphylococcus aureus* etc. by agar well diffusion method.

Antimycobacterial activity ^[14]

An in-vitro study demonstrated that Ethanolic extract of *V. odorata* contained very active compounds against *M.tuberculosis* H37Rv and *M. avium* which can be better used as lead for potential anti-TB drug formulations.

Anticancer activity ^[13]

Cycloviocin O2 (CyO2), a cyclotide from *V.odorata* has demonstrated antitumor activity (Breast cancer) and causes cell death by membrane permeabilization.

Neuroprotective activity ^[15]

V.odorata has protected neuronal cells against SGD-induced cell death through their antioxidant mechanisms in an experimental model.

Laxative activity [12, 24]

Alcoholic extract of *V.odorata* at a dose of 200 mg/kg and aqueous extract at a dose of 400mg/kg showed significant laxative effect.

Pre-Anesthetic activity [26]

Extract of *V.odorata* has shown sedative and pre-anesthetic effects better than diazepam in Rats

Anti-hypertensive Activity [29]

In a study on experimental rats of crude extract of leaves of *Viola odorata* exhibited blood pressure- lowering effect under anesthesia. The extract showed vaso-relaxation mediated through inhibition of Ca⁺⁺ influx via membranous Ca⁺⁺ channels, its release from intracellular stores and NO-mediated pathways, which possibly explain the fall in BP

Anti-dyslipidemic Activity [29]

Methanolic Extract of leaves of *Viola odorata* found effective in dyslipidemia. The anti- dyslipidemic effect is due to the inhibition of synthesis and absorption of lipids

Hepatoprotective Activity [30, 31]

In experimental mice aqueous methanol extract of *Viola odorata* has proven hepatoprotective effect against paracetamol-induced liver injury. In another study extract of flower and leaf of *Viola odorata* suggest hepatoprotective against ethanol induced hepatotoxicity in experimental animal.

Antioxidant Activity [32]

Extract of *Viola odorata* showed antioxidant effect in experimental animals.

Diuretic Activity [32]

Different extract of *Viola odorata* has been studied in experimental rat model and it was found that aqueous extract of the *Viola odorata* aerial parts showed significant diuretic activity at dose level 200 and 400 mg/kg.

Conclusion

Viola odorata L. is a useful and important medicine of Unani system of Medicine. It is successfully investigated for its action and uses in various diseases as antipyretic, anti-bacterial, anti-mycobacterial, anti-cancer, laxative, neuroprotective. In Unani System of Medicine whole plant or its part or its product is used in natural form because body can digest metabolize and retain natural ingredients easily without producing adverse effects. The drug also has some ingredients which helps in improving immunity and to fight the disease properly.

References

- Ghani N. Khazainul Advia. New Delhi: Idara Kitabul Shifa; YNM.832-834
- Anonymous. The Unani Pharmacopoeia of India, New Delhi; Ministry of Health and Family welfare, Department of Ayush, 2007, 1-5.
- Retrieved (Nov.25th 2021) from the Integrated Taxonomic Information System on-line data base(https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=22122#null).
- Anonymous. The useful Plant of India. New Delhi; National Institute of Science Communication, 2000, 109.
- Naushad et. al. Ethno- Pharmacology of Banafsha (*Viola odorata L.*) with reference to Unani system of Medicine and its Importance in management of Covid - 19,2020:12(1):1.
- Abdul Hakeem Hm. Bustanul Mufradat. New Delhi: Idara Kitabus shifa, 2002, 112.
- Bagdadi IH. Kitabul Mukhtarar Fit Tib.Part 2nd. 1st ed. New Delhi: CCRUM ministry of health and family welfare, Govt. of India, 2005, 105.
- Kabeeruddin AHM. Makhzan-ul-Mufradat. New Delhi: Idara Kitab-us- shifa, 2010, 135.
- Anonymous. The Unani Pharmacopoeia of India, Part 1 vol.2, New Delhi; Ministry of Health and Family welfare, Department of Ayush, 2007, 41-42.
- Ghani N. Khazainul Advia. New Delhi: Idara Kitabul Shifa, 2002, 397-398.
- Hakeem MA, Bustanul Mufradat, Idara Kitab us shifa, Daryagang, New Delhi, 2002, 138-139.
- Mittal P, Gupta V, Goswami M, Thakur N, Bansal P. Phytochemical and Pharmacological Potential of *Viola odorata*. International journal of Pharmacognosy,2015:2(5):215-220
- Salve T, Rathod V, Tike SK, Kadam R. A Review article on Banafsha (*Viola odorata Linn.*). An International Peer Reviewed Ayured Journal,2014:2:1-8.
- Hassan F, Naeem I. Biological activity of *Viola Odorat Linn.* against *Mycobacterium Tuberculosis*. International Journal of Pharma and bio sciences,2014:5(3):61-69
- Ghobarani A, Mousavi SH, Naghizade B, Pourgonabadi S. Protective effect of *Viola tricolor* and *viola odorata* extracts on serum/ glucose deprivation induced neurotoxicity role of reactive oxygen. Avicenna journal of phytomedicine,2016:6:432-441.
- Kokate CK, Purohit AP, Gokhale SB. Pharmacognosy,2009:43:11.54, 11.55
- Kirtikar KR, Basu BD. An ICS. Indian Medicinal Plants with Illustration. Uttaranchal: Oriental enterprises,2003:2:281-282.
- Ibn Sina, Al-Qanoon fit-Tibb. (English Translation). New Delhi: Jamia Hamdard,1998:111:2.
- Haleem MA. Mufarradate Azeezia. New Delhi: CCRUM, Dept. of AYUSH, Ministry of Health & Family Welfare, Govt. of India, 2009, 103.
- Anonymous. Standardization of Single Drugs of Unani Medicine. Part II. New Delhi: Central Council for Research in Unani Medicine (CCRUM). Ministry of Health & Family Welfare, Govt. of India, 1992, 149-152.
- Prajapathi ND, Purohit SS, Sharma AK, Kumar T. A Handbook of Medicinal Plants a complete source book. Jodhpur: Agrobios (India),2009:2:540-541.
- Khare CP. Indian Medicinal plants an illustrated dictionary with 215 pictures of crude herbs. New Delhi, 2007, 706.
- Qasemzadeh MJ, Sharifi H, Hamedanian M, Gharehbeglou M, Heydari M, Sardari M *et al.* The Effect of *Viola odorata* Flower Syrup on the Cough of Children with Asthma: A Double-Blind, Randomized Controlled Trial. Journal of Evidence-Based

- Complementary & Alternative
Medicine,2015:20(4):287-291.
24. Vishal A, Parveen K, Pooja S, Kannappan N, Kumar S. Diuretic, Laxative and Toxicity Studies of *Viola odorata* Aerial Parts. *Pharmacology online*,2009:1:739-748.
 25. Khattak SG, Gilani SN, Ikram M. Antipyretic studies on some indigenous Pakistani medicinal plants. *Journal of ethnopharmacology*,1985:14:45-51
 26. Monadi A, Rezaie A. Evaluation of sedative and Pre-Anesthetic effects of *Viola odorata* Linn. Extract compared with Diazepam in Rats. *Bulletin of Environment, Pharmacology and Life Sciences*,2013:2(7):125-131
 27. Multani HC. *Hindustan wa Pakistan ki jadi booti*. Part 4. Lahore Maktaba Daniyal. YNM
 28. Hakim MAH. *Mufradat Azeezi*. New Delhi: CCRUM, 2009.
 29. Siddiqui et.al. Studies on the antihypertensive and anti-dyslipidemic activities of *Viola odorata* leaves extract Lipids in Health and Disease,2012:11:6
 30. Qadir MI. Hepatoprotective activity of aqueous methanolic extract of *Viola odorata* against paracetamol-induced liver injury in mice, *Bangladesh J Pharmacol*,2014:9:198-202.
 31. Ibrahim RM. Immunological, Cytogenetic and Hepatoprotective Effect of *Violaodorata* methanolic extract on Methotrexate Induced Albino Male Mice, *Journal of Biotechnology Research Center*,2017:(1):2:47-55.
 32. Vishal. Diuretic, Laxative and Toxicity Studies of *Viola odorata* Aerial Parts, *Pharmacology online*,2009:1:739-748
 33. Dymock W, Warden CJH, Hooper D. *Pharmacographia Indica*, Vol. I. M/s Bishan Singh Mahendra Pal Singh, Dehradun & M/s Periodical Experts, Vivek Vihar, Delhi, 1891, 140-141.
 34. Anonymous, *The Wealth of India 'Raw Materials'* C.S.I.R., New Delhi,1950:10:514-516.
 35. Pulliaiah T, *Encyclopedia of World Medicinal Plants*, Regency Publication, New Delhi,2006:4:2048.