

MALAXIS ACUMINATA: A REVIEWSharma Pushpa*¹, Mahajan Nipun², Garg Pankaj¹, Singh Gurkirpal¹, Dadhwal Sumit¹, Sharma Sakshi³¹M.M. College of Pharmacy, M. M. University, (Mullana) Ambala, Haryana, India²Department of Pharmaceutical Sciences, Lovely School of Pharmaceutical Sciences, Lovely Professional University, Phagwara, Punjab, India³Ranbaxy Laboratories, Gurgaon, Haryana, India

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ABSTRACT

Malaxis acuminata (Jeevak) is of a renowned status in the Ayurveda, but yet it has been very less studied for its detailed phytochemistry and pharmacological properties. *M. acuminata* is a globally soil loving plant that grows in the shady areas of semi-evergreen to shrubby forest. Its dried pseudo-bulbs are important ingredients of several Ayurvedic preparations like Chyawanprash, therefore it is well known for its medicinal properties. It belongs to **Ashtverga** (combination of eight drugs) which is one of the core parts of the Ayurveda.

KEYWORDS: Orchidaceae, Pseudo-bulbs, Ashtverga, Jeevak

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E-mail: pushpa_mullana@rediffmail.com**INTRODUCTION**

M. acuminata is an orchid belonging to the family orchidaceae. Orchidaceae is the largest family among monocotyledons, containing 600-800 genera^{1,2}. Chinese were the first who have described the orchids, their cultivation and medicinal uses. In mediaeval times and even later, the roots of the most orchids were used medicinally. Several of the orchids have bulging or thick tuberlike roots and are said to have proved nutritious emergency foods. However, to the great rarity of most of the species, already fast becoming exterminate, it is hoped that no one will experiment with these plants as food. However, at the present time in remote districts of the United States and Canada the roots, as "Nerve-Boots", have a large reputation as Nerve-tonics³. *M. accuminta* showed the highest density in the habitats Banj-oak (BO), mixed oak (MO), and Oak pine (OP) because of its tendency to grow quickly. This species grow in colonies and one colony may contain 5-25 individuals. *M. acuminata* forms colonies in shady places, moist ground and in the area that are wet & mossy⁴. As *M. acuminata* is a terrestrial orchid, it has a symbiotic relation with a special fungus. This fungus raids the cells of the root's outer layer, providing the plants with the nutrients and is essential for the seed germination of most orchids. A terrestrial orchid's does

not require a host plant for its survival^{5,6}. Jeevak, the orchid is a critically endangered species and collection from the wild can cause irreparable damage to the survival of this species. Collection from wild has been banned in certain states like Uttarakhand. No report on its commercial cultivation is available so far. The orchid is still available in the market for the pharmaceutical industries and medical practitioners. Therefore, its collection is from forest areas alone. Samples collected from the market contain pseudo bulbs which are too small to be harvested or used. Collectors take out the whole plant mass and do not seem to leave even the small bulbs for future growth thus endangering its survival in the wild⁷. It is also known as Rishbkhaka, Bandhura, Dhira, Durdhara, Gopati, Indraksa, Kakuda, Matrika, Visani, Virsa and Vrisnabha in various different places⁸.

DISTRIBUTION

Malaxis genus is distributed throughout the world. It is found in India, Bangladesh, Eastern Himalayas, Lower India, Nepal, Western Himalayas, Bhutan, Andaman Islands, Myanmar, Thailand, Malaysia, Laos, Cambodia, China, Vietnam, Java, Sumatra, Philippines and Australia^{9,10}. It is also found in Ecuador and Peru in upper mountain grasslands at elevation of 1500-3850m. *M. acuminata* is a rare, terrestrial perennial, endangered

medicinal orchid of Himalayan region. It is distributed in temperate to subalpine areas of the Himalayan region. Uttarakhand is the richest hub of *M. acuminata*. The most important pseudo bulb of this plant is well known for its medicinal value in Indian System of Medicine and traded with the name Jeevak since time immemorial¹¹.

DESCRIPTION

M. acuminata plant starts growth via seed germination or from dormant apical bud from underground part in the month of April. The species is perennial and remain in the vegetative phase during first two or more years of growth. The plant bears two sessile, orbicular-ovate to ovate-lanceolate leaves of unequal size. During the 3rd or later year of growth the plant produces its reproductive flower bearing axis^{12,13}. Inflorescences attains length to 10-15 cm. Flowers are 3 mm in diameter and yellowish-green in colour. Bracts are lanceolate, shorter than the ovary, sepals sub-equal, and oblong-lanceolate, sub-acute. Petals are linear and shorter than the sepals^{14,15}. Lip ovate abruptly pointed, margins thickened. Flowering time July-August. Tuber-round shining, bearing stem giving shape bullock horn, having a similar curvature. The taste is slightly bitter with fat like substance^{16,17}.

PREVIOUS INVESTIGATION

The preliminary testing was carried out to evaluate the pharmacognostical as well as physicochemical standards of *M. acuminata* with emphasis on TLC fingerprinting of the drug for chemical identification. Microscopic examination of the powder showed calcium oxalate crystals of various shapes and sizes, parenchymatous cells single or in groups containing yellowish brown pigments. Fibers, vessels and trachoids were single or in groups. No fungus had developed during storage. Transverse section of *M. acuminata* was circular in outline. Epidermal cells were barrel in shaped having circular in outline. Below epidermis, large ground tissues consisting of parenchymatous cells toward epidermis were smaller in size while toward midpoint they were bigger. Parenchymatous cells had sufficient inter-cellular space. Vascular bundles were scattered in ground tissue. Phloem was encircled by xylem. Numerous mucilage canals were present in ground tissue. Vascular elements showed scalariform and spiral thickening¹⁸.

PHYTOCONSTITUENTS

M. acuminata is important for its medicinal uses in traditional system of medicine since Vedic period but study on its phytoconstituents is very less. Malaxis orchids are believed to contain large number of alkaloids, glycosides, flavonoids. Some phytoconstituents has been reported from *M. acuminata*. One sterol namely β -sitosterol (**1**) has been isolated from ethyl acetate extract

of *M. Acuminata*¹⁹. Other reported Compounds include piperitone (**2**) citronellal (**3**), eugenol (**4**), Limonene (**5**), 1, 8- cineole (**6**), p- cymene (**7**), O-Methylbatatasin (**8**) and cetyl alcohol (**9**)^{20,21,22} (**Figure 1**).

ETHANOPHARMACOLOGY

M. acuminata have been used from time immemorial. *M. acuminata* has been used in the preparation of Chyawanprash²². It is also used to increase the quantity of semen or to stimulate the production of semen¹⁶. Its swollen stem is sweet, refrigerant, aphrodisiac, styptic, antidiysenteric, febrifuge and tonic. It is used in condition of sterility, vitiated condition of pitta and vata, seminal weakness, internal and external haemorrhages, dysentery, fever, emaciation, burning sensation and general debility²³. Paste of pseudo bulb can be applied externally in case of insect bites, and when mixed with other plants are used in the treatment of rheumatism²⁴. Ayurvedic Dynamics of the plants includes sweetness in taste, cold in potency, pacifies vata and aggravates kapha²⁵. It has also been used pharmacologically in bleeding diathesis, Burning sensation, and Phthisis (lung disease)^{26,27}.

MARKETED PRODUCTS

M. acuminata is the main ingredient of Chyawanprash. Himalaya Chyawanprash is a unique combination of ancient wisdom and modern science. It is made from an age-old recipe under strict supervision. Its natural ingredients are tested to ensure the highest level of purity. Himalaya Chyawanprash protects your family from unbearable disorders like coughs, colds and infections by revitalizing the body's natural immunity. It is helpful in the smooth functioning of the circulatory, nervous and respiratory systems to create overall good health²⁸. Himalaya Chyawanprash benefits are:

- Adaptogenic, immunomodulator, health promoter, rejuvenator
- Improves digestion, bowel movements
- Indicated in respiratory dysfunctions
- Debilitating and aging disorders

The Substance has been found to be substituted with *Pueraria tuberosa* DC¹⁵.

DISCUSSION

M. acuminata is a terrestrial orchid plant. In India, it is an important species of Uttarakhand and is used as an important ingredient in the preparation of Chyawanprash since Vedic period. Extensive literature survey of this valuable plant revealed that no any extensive research work dealing with the isolation and characterization of phytoconstituents and their pharmacological activities of *M. acuminata* has been carried out so far by the scientific community.

CONCLUSION

The above discussion clearly indicates that *M. acuminata* is one of the important ingredients of Ashtverga (Ayurveda) plants, which has become endangered species. The Special laws must be planned by the government to plan its cultivation and collection in order to protect it from getting loss from our planet. Also, the chemists and the pharmacologist must explore this plant for the potent phytoconstituents and their pharmacological properties by which new chemical entities (NCE) can be found as useful answer to combat the challenges of pharmaceutical profession to fight frightening diseases of the day and future.

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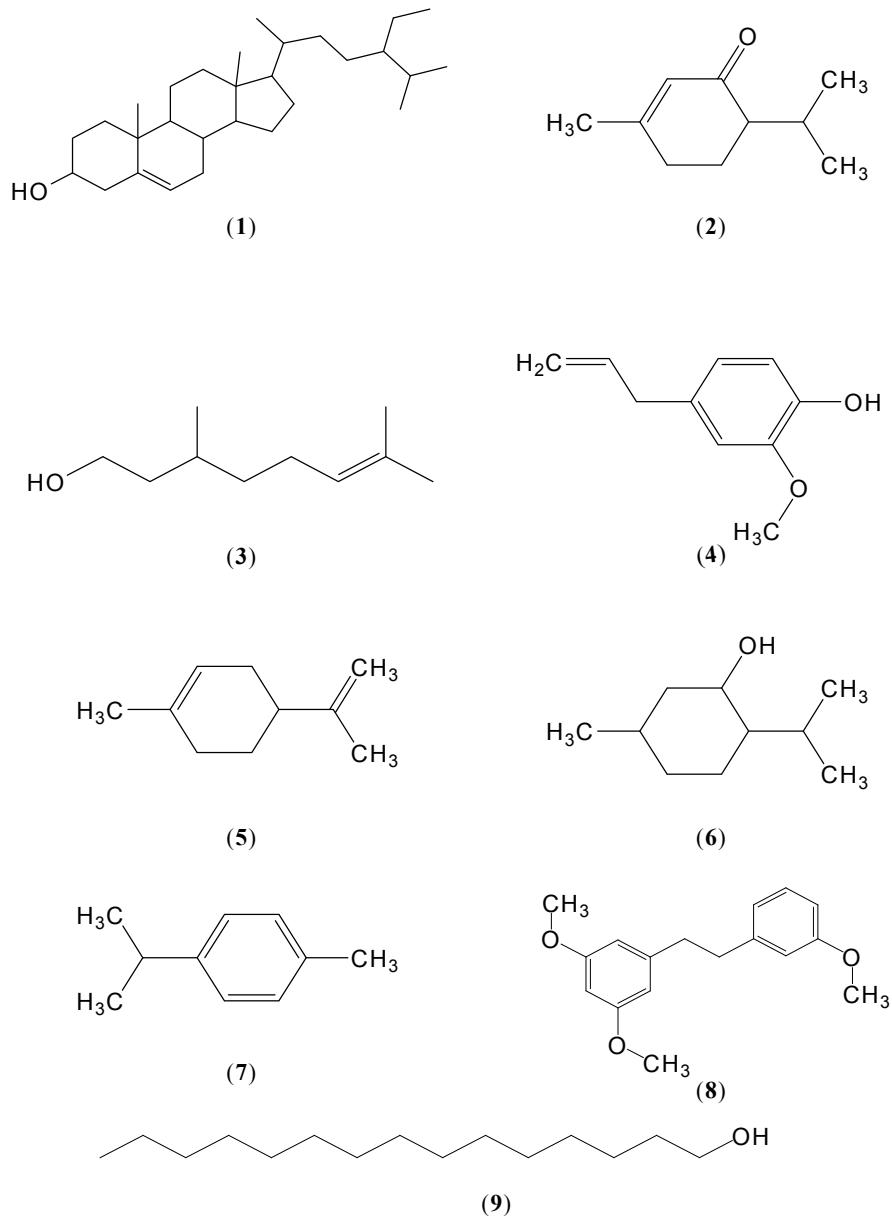


Figure 1: Reported Phytoconstituents In *Malaxis acuminata*