

ORIGINAL RESEARCH ARTICLE

Multi Faceted Actions of Orchids in Ethno-Medicine-An Appraisal

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ABSTRACT

Acharya Charaka opines that “there is no substance in the world which does not have therapeutic values and at the same time everything cannot be used in the treatment of every disease”. Both *Charaka* and *Sushruta* have encouraged to collect the profiles of therapeutic agents (drugs) from traditional tribal sources and suggested for proper application in clinical conditions. Ayurvedic materia medica classified drugs into three categories i.e., vegetable, animal and metals including minerals. Among vegetable drugs, plants belonging to orchid groups are relatively less in number. According to botanical source some of the drugs of *Ashtavarga* (group of eight medicinal plants) are certain varieties of orchids. Medico-ethno-botanical surveys have collected colossal information on the usage of orchids from the local health traditions. Claims with regard to these orchids are analysed in the paper which may help to explore the therapeutic potentials of orchids. This may lead to establish “orchid herbal therapy” for refractory conditions like arthritis, liver disorders and life style diseases viz, obesity, diabetes, hypertension etc. Scientific research may contribute for exploring and establishing antioxidant, anti cancerous, anti diabetic, hypolipidemic and immunomodulatory agents from orchids with a better safety profile.

Key words: Orchid, local health tradition, ethno medicine, life style diseases.**INTRODUCTION**

Orchids are the herbaceous plants of the family Orchidaceae which are in high demand due to their extraordinary flowers. Orchidaceae is considered to be the most successful of all plant families due to the largest number of existing species. According to various assessments 25,000 to 35,000 species in 600-800 genera are recorded under this family (Arditti, 1979) ^[1]. It is the 3rd largest family of flowering plants in India, which includes epiphytic, terrestrial and a few saprophytic orchids. In evergreen and semi evergreen forests of Northern-Western Ghats (Sahyadri) 60% orchids are epiphytic and 40% are terrestrial. In Konkan region, the orchid population is high but the species diversity is relatively low. Rest of Maharashtra except Western Ghats and Konkan regions has low orchid diversity due to low humidity and high temperature ^[2].

History states that association of man with orchids has been seen since human civilization and orchids were cultivated even as early as 500 B.C. Orchid was the symbol of everything graceful and feminine, noble and refined in China.

The term orchid has its origin from the Greek word ‘orchis’ meaning testicle, referring to the paired underground tubers of European terrestrial orchids, compared with the testicle of a dog ^[3]. The people of middle ages even believed that orchid plants came up from the drops of semen which fell to earth in meadows where animals came together to breed (Schweinfurth, 1959). Since decades there has been tremendous progress in medicinal plants research. But orchids have not been explored completely for their medicinal application. In Ayurvedic materia medica certain orchids are mentioned as botanical source of herbs mentioned under *Ashtavarga* ^[4] (group of eight medicinal plants). *Jeevaka*, *Rishabhaka*, *Riddhi* and *Vridhhi* of *Ashtavarga* are sourced from Orchidaceae members like *Malaxis muscifera* (Lindl.) Kuntze, *Malaxis acuminata* D. Don, *Habenaria intermedia* D. Don and *Habenaria edgeworthii* Hook. f. ex Collett respectively ^[5]. These forms part of *Jeevaneeya gana* ^[6] and used in various formulations including Chyavanprasha ^[7]. *Munjataka*, a drug mentioned by the classical ayurvedic texts is supposed to be an orchid species named *Orchis latifolia* Linn. and

Jeevanti is a classical drug believed to be *Dendrobium macraei* Lindl., a orchid species by many of ayurvedic scholars [8]. *Rasna*, a commonly preferred drug in the management of *Vataja* (nervous) and *Kaphaja* (inflammatory) disorders is also derived from an orchid species *Vanda roxburghii* R.Br. in Bengal and other regions [9].

In the present study a meta-analysis was carried out to document important claims of orchids used in various traditional practices by the ethnos.

Use of orchids in local health traditions of India-

Acampe carinata (Griff.) Panig – Root [10] and leaf paste [11] are used internally in abdominal pain. Root paste of *A.carnata* is applied locally on scorpion sting and snake bite [10].

Acampe papillosa Lindl. – Roots have expectorant property and used in treating Asthma [11].

Acampe praemorsa (Roxb.) Blatt & McCann - Leaf juice is applied over nipple for abdominal pain, also used in earache. The wholeplant is used in rheumatism [12]. Root pastes of *A. praemorsa* and *Asparagus racemosus* are mixed together and taken orally on empty stomach to alleviate arthritis [11]. Leaf paste is used in fracture healing [13].

Bulbophyllum neilgherrense Wight- Fine paste of the pseudobulb and leaves is administered orally for leucoderma [14].

Bulbophyllum odoratissimum Lindl.- Whole plant infusion or decoction is used in fracture healing and treatment of tuberculosis [15].

Bulbophyllum sterile (Lam.) Suresh - The Pseudobulbs are used to prepare medicated coconut oil for external application in rheumatism [16].

Calanthe triplicate (Willem.) Ames- Whole plant is used in abdominal pain. Roots are chewed along with betel nuts and other aromatic substances in diarrhea and dysentery [17].

Coelogyne cristata Lindl.- Pseudobulb infusion is used in constipation and also acts as aphrodisiac [18].

Coelogyne stricta (D.Don) Schltr.- Pseudobulb used to treat fever and headache [19].

Cymbidium aloifolium (L.) Sw. - Plant is emetic & purgative. Leaf juice mixed with salt or juice from pod is used to treat earache [20]. The paste prepared from aerial root paste of this plant is used for joining fractured bones [21].

Cypripedium pubescens Willd. - Root is used in nervous irritability, nervous headache and also controls diabetes [21].

Dendrobium crumenatum Sw. - Leaf poultice is applied in boils and pimples, also used in nervous system disorders and nervous debility [22].

Dendrobium densiflorum Lindl.ex.Wall.- Leaf paste is applied for fracture healing [23].

Dendrobium herbaceum Lindl. - Leaf paste is applied on infected parts of syphilis [24], tender leaf juice is used in earache [25].

Dendrobium macraei Lindl. Syn *Flickingeria macraei* Seidenf. - Root paste taken on empty stomach along with black pepper cures skin allergy and is also applied externally on Eczema [26], used in Snake bite & Snake bite wounds [27]. Fruit [25] and whole plant are aphrodisiac [28].

Dendrobium macrostachyum Lindl. - Tender leaf tip juice is made use in earache [25].

Dendrobium nobile Lindl. - Fresh and dried stem is aphrodisiac and analgesic. Pseudobulb extract cures eye infections and soothe burns [25].

Dendrobium normale Fale - Whole plant is aphrodisiac and tonic [25].

Dendrobium ovatum Kranzl. - Fresh plant juice is used in stomach ache and acts as laxative [25].

Dendrobium regium Prain- Plant crushed in *Karanj* oil (*Pongamia pinnata*) is used in skin diseases [29].

Epipactis latifolia Wall. - Rhizomes relieve nervous system disorders and is aphrodisiac [30].

Eria muscicola Lindl. - Pseudobulb is used in heart troubles and ear problems [30].

Eulophia campestris Wall. Syn - *Eulophia dabia* (D.Don) Hochr. Tuber is used in scrofulous glands of neck [31], heart troubles [30], Intestinal worms, sexual debility [31] and other sexual disorders [32]. Also used in purulent cough and acts as nervine tonic [33].

Eulophia explanata Lindl.- Pseudobulb crushed with pepper and garlic is applied in wounds and is used in impotence and other sexual disorders [34].

Eulophia nuda Lindl - Tuber is used in intestinal worms, crushed bulb is applied on tumours and tuberculous glands of neck [35].

Eulophea ochreatea Lindl. - Tuber is aphrodisiac and used in impotence [35].

Eulophia spectabilis (Dennst.) Suresh - Leaf decoction is used against worms [35].

Gastrodia elata Blume - Stalk is aphrodisiac, dried plant and tuber relieves headache and also used in nervous system disorders and nervous debility [36].

Geodorum densiflorum Schlechter - Tuber powder mixed with cow's ghee is employed to treat dysentery [37].

Gymnadenia orchidis Lindl.- Root is useful in gastric, gonadic and urinary complaints [38].

Habenaria commelinifolia Wall ex Lindl.- Tuber is used in snake bite and snake bite wounds. Root is used to treat fever and whole plant is used in Nose bleeding [39].

Habenaria crinifera Lindl.- Whole plant relieves headache [39].

Habenaria edgeworthii Hook. f. ex Collett - acts as nervine and cardiac [40] tonic.

Habenaria intermedia D. Don - Root is expectorant³⁶, acts as nervine tonic and cardiac tonic [40].

Habenaria marginata Coleb. - Tuber decoction with honey on empty stomach is administered in malignant ulcer [36].

Habenaria pectinata D. Don - Leaf is crushed and applied in snake bite and snake bite wounds. Tubers mixed with condiments are used in arthritis [36].

Habenaria repens Nuttall.- Tuber decoction acts as aphrodisiac [41].

Habenaria roxburghii Nicolson in Salda. - Tubers are eaten daily morning before breakfast to control burning micturition [42] and diabetes [43]. Tuber decoction is applied on snake bite [44].

Habenaria susannae (L) Rafin.- Tubers are used in Blebs or bullae on palm [45].

Malaxis acuminata D.Don - Pseudobulb is aphrodisiac [44].

Orchis latifolia L.Syn *Dactylorhiza hatagiarea* (D Don) Soo. - Tuberous root decoction is useful in abdominal pain [45], root is used in diarrhea and dysentery, chronic fever, as aphrodisiac and as nervine tonic [46]. It is also useful in arthritis, gout and tones up genito- urinary functions [47], boiled extract of tuber mixed with milk is given in fracture healing [48].

Orchis laxiflora Lam. - Bulb is expectorant and also used in bronchitis [49].

Orchis mascula L.- Root powder is cooked with milk in the proportion of one tea-spoonful to a tea-cupful of milk for chronic diarrhea and dysentery, also used in nervous system disorders and nervous debility and is aphrodisiac. Its tuber controls diabetes [50].

Pholidota chinensis Lindl.- Pseudobulbs are used in duodenal ulcer, scrofulous glands of neck and tooth ache. Pseudobulb tincture is used in bronchitis⁵¹.

Pholidata imbricata L.- Pseudobulb extract is used in abdominal pain and rheumatism. Leaf and root paste is applied externally for healing fractures [52].

Pholidata pallida Lindl.- Bulb is used in intestinal worms and abdominal pain. Root is used in rheumatism [53].

Rhynchostylis retusa Blume - Whole plant preparations are used to treat asthma, tuberculosis, infantile epilepsy, kidney stone and menstrual disorders [52].

Saccolabium papillosum Lindl.- Root is used in rheumatism [53].

Saccolabium praemorsum Lindl.- Root is used in rheumatism [53].

Tropidia curculigoides Lindl.- Root decoction cures diarrhea and whole plant decoction is used in malarial fever [54].

Vanda coerulea Griff.ex Lindl. - Flower juice is used as eye drops against glaucoma, cataract and blindness [55]. Leaf is used externally in skin diseases and leaf juice is used in diarrhea and dysentery [56].

Vanda cristata Wall.ex Lindl. - Leaf acts as expectorant [55].

Vanda parviflora Lindl. - Crushed leaf is applied on cuts and wounds, boiled leaves are used in ear ache [57]. Leaf and roots are used in rheumatism [58].

Vanda spathulata Speng. - Leaf and flower powder cures nervous system disorders and nervous debility [59]. Flowers are used to treat asthma, used in mania [60] and scorpion sting [61].

Vanda teres Lindl.- Leaf is used in typhoid fever [62] and employed as an anti infertility drug [63].

Vanda tessellata (Roxb.) Hook. Ex G. Don. Syn *Vanda roxburghii* R.Br.- Root is used in constipation [64], root paste in rheumatism, root, leaves and flower are used in nervous system disorders and nervous debility. Root decoction is taken orally with honey in sexually transmitted diseases. Powdered root, leaves, flowers are used in bronchitis, scorpion sting, rheumatism and other inflammatory conditions, In fracture, aerial roots and leaves ground with tender bud of phoenix loureirii and applied externally and extract is given orally [65]. Whole plant is used in night blindness and eye diseases, root is also used as anti infertility drug [66].

Vanda testaceae Rchb.f. - Leaves are used in malarial fever⁶⁷, nervous system disorders and nervous debility. Its leaves and decoction made of root are used to treat asthma and earache [68].

Vanilla planifolia Andrews - Sheath infusion is used to treat fever, hysteria [69] and impotence. Fruit acts as aphrodisiac [68].

DISCUSSION

The ethno medicinal value of orchids is reported from India and all over the world in various books and published journals. The therapeutic value of 58 orchids used in different diseases reported from tribal pockets are enumerated with the details about part used and methods of application in various diseased conditions.

Orchids like *Acampe praemorsa* (Roxb), *Eulophia campesris*, *Orchis mascula*, *Orchis latifolia* Linn, *Habenaria* species, *Dendrobium* species, *Pholidata* species, *Vanda tessellata* and other *Vanda* species are seen to be applied in various disorders. *Dendrobium* is the largest epiphytic genus in India. Nine orchids from this genus have been commonly used by the ethnos. Orchids from *Eulophia* genus are aphrodisiac and used in sexual problems. Nine species of *Habenaria* are referred with different therapeutic applications. Seven species of *Vanda* have been used.

Certain conditions like rheumatism, fractures, ear ache, nervous disorders, wounds, sexual problems, swellings, worm infestation, headache are found to be managed by the traditional practitioners with simple formulations consisting of orchids. Many of the Orchids are also used as tonics. Fewer claims of orchids are found on heart diseases including *Eria*, *Eulophia* and *Habenaria* species.

Tribal claims like use of *Bulbophyllum neilgherrense* in leucoderma, the skin disease for which there is no effective treatment can be brought to practice if proven by different phases of research. Anti bacterial effect of this orchid drug is only proven till date [70]. *V. coerulea* used as eye drops in eye diseases when proven can also be of much benefit to the society.

The pharmacological studies demonstrated that the stem of *Dendrobium nobile* has biological activities in the inhibition of tumor progression and physical decline, strengthening of immunity, and treatment of cataract and infectious diseases. *Eulophea ochreata* has in vitro Antioxidant, Antiglycation and α - amylase inhibitory potential helping in diabetes and aging-related complications. *Gastrodia elata* has a protective effect against neuronal damage following global ischemia in gerbils. *Habenaria intermedia* tubers showed protective effect against acute and chronic physical and psychological stress paradigms in rats. *Vanda cristata* Wall.ex Lindl. leaf is reported as antibacterial. *Vanda tessellata* has been proven to have aphrodisiac effect in mice.

In few of the cases, the mode of administration or application is not clear and only useful part has been documented. It is also seen that tuber,

rhizome or pseudobulb has been used in majority of orchids. Pseudobulbs are specifically seen in orchids which store water and nutrients. Flowers of few orchids are used to treat asthma and nervous disorders. Fruits are rarely used.

Orchids have been given important place in the treatment of sexual problems and many are in use as aphrodisiac. The concept of similarity of the orchid tubers to the testicle, developing in an age when the Doctrine of Signatures was prevalent throughout Europe, endowed the orchid plant with mysterious powers to enhance the sexual prowess and fertility in man [71]. Classical texts have also highlighted orchid drugs like *Jeevaka*, *Rishabhaka*, *Riddhi* as *Rasayana* [72] and *Vajeekarana* agents [73,74] and used mainly in the treatment of *Vata* dominant diseases (which involves nervous system and musculoskeletal disorders mainly) [75,76].

A well planned scientific enquiry by incorporating phytochemical, pharmacological and controlled clinical trials help to identify the potential active principles which may contribute for formulating safe, effective and fast acting agents in the refractory conditions and life style diseases like arthritis, diabetes, hypertension, obesity, cancer, liver diseases and autoimmune diseases. This may also help to evolve therapeutic potential of orchids and bring out orchid herbal therapy for the well being.

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