



Traditional knowledge of medicinal orchids in different parts of India

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Traditional knowledge of medicines gets transferred from generation to generation among the tribal people verbally. Since recent past some ethnobotanists started scientific documentation of it. Beside other plants, orchids also kept their deep footprint in traditional medicines. India is a country of orchid richness with 1300 orchid species, out of those approximately 250 orchid species are being used in tribal, Ayurvedic and Unani system of medicine. In spite of having high medicinal potential, very often orchids are ignored as medicinal herbs, and emphasized as ornamental plants in India. Use of orchids in the field of medicine can draw a lot of economic benefits to the drug development industries and socioeconomic benefits to the orchid farmers. For that a compiled source of information about traditional knowledge on medicinal potential of orchids can be a good source of reference. The present review can serve the purpose.

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Wild plants, often abundant and thriving in diverse ecosystems, have played an integral role in the lives of tribal communities for centuries. These natural resources have served as source of medicinal remedies for these indigenous populations. There is lack of written documents about these medicinal plants. In recent times, ethnobotanists have undertaken the task of systematically and scientifically documenting this invaluable indigenous wisdom. This traditional knowledge, deeply rooted in local plant varieties, exhibits significant variability across regions and even among different tribal groups within the same geographic area¹. The significance of these indigenous systems of knowledge has been increasingly recognized, particularly within the pharmaceutical and drug development industries². Beyond drug discovery, this wealth of knowledge contributes to the identification of promising and economically valuable plant species and land races³. It also plays a crucial role in the formulation of strategies for environmental management and the conservation of biodiversity, alongside preserving traditional practices of plant and land utilization⁴. The ancient tradition of employing orchids for medicinal purposes has a history dating back to Vedic times in India⁴. Orchids have found a place within various traditional medicinal systems,

including Ayurveda, Siddha, Unani, and Homeopathy. These systems heavily rely on herbal formulations to address a wide array of health issues. For example, the Charaka Samhita lists 341 plant species and herbal products, while the Sushruta Samhita describes 1,120 types of diseases, 700 medicinal plants, and 121 preparations. India, known for its rich botanical diversity, is home to approximately 47,000 plant species, with a staggering 15,000 of them having medicinal importance. Of these, 30 are employed in modern medicine, 700 features in the Unani system, 600 in Siddha, and a remarkable 7,000 are part of Ayurveda⁵. Within this vast botanical landscape, the Ashtavarga, a group of eight plant species, holds a prominent place in Ayurvedic medicine, including four orchid species: Jeevaka, Rishbhaka, Riddhi, and Vriddhi⁷. These botanical treasures form a crucial component of the Indian traditional medical heritage. It is imperative to recognize that the tribal communities of India, comprising 645 distinct tribes, continue to rely on their traditional medical systems, as modern healthcare often struggles to reach them in their isolated habitats. Knowledge of medicinal plant usage is passed down orally through generations, forming the primary means of treating illnesses within these communities⁴. Among the wide array of plants used in their healing practices, various orchids hold a special place. Ethnobotanical studies reveal that approximately

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150 orchid species are employed in traditional Indian medicine. However, published information on the medicinal properties of orchids remains limited in scope, often confined to specific regions or localities⁸. This comprehensive review aims to encompass nearly all medicinal orchids found within India's geographical boundaries, shedding light on their diverse applications in treating a multitude of ailments. While ornamental values are often highlighted, several orchid species bear significant therapeutic properties. This study seeks to accentuate the pivotal role that orchids play in herbal medicine and drug research, emphasizing their lesser-known medicinal potential⁹. Orchids within the genera *Dendrobium*, *Eulophia*, and *Vanda*, among others, have been harnessed to combat respiratory disorders like tuberculosis and asthma, while species from the *Cymbidium*, *Habenaria*, and *Arundina* genera are employed for skincare, aiding in wound healing and skin conditions. This study endeavors to compile a comprehensive repository of traditional medicinal uses of orchids across India and delves into their efficacy in addressing specific health conditions¹⁰. In this study, it was attempted to compile all the available information regarding traditional uses of medicinal orchids throughout India. Also, the medicinal uses of orchids for specific diseases were compiled in relation to their potential therapeutic properties.

Indian system of medicines and orchids

In India there are some well acknowledged systems of medicine namely Ayurveda, Unani, Siddha, Yoga, Homeopathy and Naturopathy. Among these, Ayurveda, Siddha, Yoga, and Naturopathy originated in India. Though not officially recognized, there are tribal or folk medicine in indigenous healthcare which plays a vital role in meeting the healthcare needs of tribal people in India, where advanced modern system of treatment can't easily reach⁴. In the realm of natural medicine systems, orchids with medicinal significance hold a pivotal role. India, the birthplace of four essential systems of medicine, is abundantly blessed with medicinal orchids, underscoring the significance of delving into the ethnobotanical applications of these enchanting plants.

Use of orchids in Ayurveda system of medicine

The Ayurveda system generally uses medicinal plants and products of natural origin for curing different illness¹¹. The books written during seventh to the eleventh century mention "Ashtavarga"; it

consists eight plant species⁷. These plants are called as Jeevaniya (improves vitality and immunity), Brhnayiya (triggers cell regeneration) and Vayasthapan (activates metabolic process, thus leads to youthfulness)¹². At present, the scientific communities agree that four out of eight plants in Ashtavarga *i.e.*, Rishbhaka, Jeevak, Riddhi and Vriddhi are orchids namely *Microstylis muscifera* Ridl. (*Malaxis muscifera* (Lindl.) Kuntze.), *Malaxis acuminata* (D. Don.) (*Crepidium acuminatum*), *Habenaria edgeworthii* Hook f. (*Platanthera edgeworthii*) and *Habenaria intermedia* (D. Don.) (*H. arietina*), respectively. All these four orchids are found in North Western Himalayas at an altitude of 1800-2800 m¹³. These four orchid species are also found in the Eastern Himalaya regions (Sikkim, other Northeastern states and hills of West Bengal) of India at an altitude of 800-4300 m^{14,15}. Other orchids used in Ayurveda are Jeevanti (*Flickingeria macraei*) (*Dendrobium macraei* Rchb. f.), Munjataka (*Dactylorhiza hatagirea* D. Don.) and Rasna (*Vanda tessellate* (Lindl.) Rchb. f.).

Use of orchids in Unani system of medicine

In the Unani medicine in Turkey, orchid tubers are powdered and used to prepare salep, foods and drugs¹⁶. In Unani system, Salam lahsunia, Salam Panja, Salam Badshah and Salam Mishri are very common. These names were given on the basis of orchid tubers used to prepare the salep. In India, orchids like *Eulophia nuda* Lindl., *Dactylorhiza hatagirea* (D. Don.), *Satyrium nepalense* (D. Don.) and *Habenaria commelinifolia* (Roxb.) Wall. ex Lindl. are commonly used for preparation of salep⁴.

Disease specific use of medicinal orchids

Use of orchids in respiratory remedies

Dendrobium nodosum Dalzell leaves and pseudobulbs juice is used to treat asthma whereas the whole plant is used for treating bronchitis²⁴. In Uttar Pradesh *Dendrobium plicatile* Lindl. can cure asthma and bronchitis²⁵. *Eulophia campestris* Wall. ex Lindl. is used for treating scrofula²⁶ whereas rhizomes of *Eulophia epidendreaea* (J. König ex Retz.) C.E.C. Fisch. 1928. and *Eulophia ochreatea* Lindl. are used to address cough and cold (Table1). Tubers of *Eulophia nuda* Lindl. Alleviate bronchitis²⁷. The pseudobulbs of *Malaxis acuminata* (D. Don.), *Malaxis muscifera* (Lindl.)²⁸ and *Habenaria intermedia* (D. Don.)²⁹ are used to

prepare an herbal tonic called Chyawanprash, the pseudobulbs are also used to cure tuberculosis²⁸. Pseudobulbs of *Malaxis acuminata* (D. Don.) cure bronchitis, phthisis and relief burning sensation³⁰. Furthermore, pseudobulbs of *Pholidota chinensis* Lindl. are used to treat bronchitis³¹. *Rhynchostylis retusa* (Linn.) Bl. plant is used against tuberculosis and asthma³². Raw or powdered flowers of *Vanda spathulata* (L.) Spreng. are ingested for the treatment of asthma^{33,1} and tuberculosis¹. *Vanda tessellata* (Lindl.) Rehb. f. plants are used for curing bronchitis³⁴. Roots of *Acampe praemorsa* (Roxb.) Blatt. & McCann can also be used for curing asthma⁹. The root infusion of *Aerides maculosa* Lindl. is consumed once a day for 1-2 months to cure tuberculosis⁴. *Rhynchostylis retusa* (Linn.) Bl. is employed for the treatment of respiratory conditions like, asthma and tuberculosis³⁵. Hemoptysis and pulmonary tuberculosis can be treated by *Bulbophyllum umbellatum* Lindl. orchid³⁶.

Use of orchids in dermatological remedies

Salep from the *Cymbidium aloifolium* (L.) Sw pseudobulbs can heal burns and sores. *Dactylorhiza hatagirea* (D. Don.) and *Eulophia ochreatea* Lindl. has astringent properties³⁷⁻³⁹ (Table 2). *Dendrobium nodosum* Dalzell also have astringent property and cures dermatological infections²⁴ as well as for alleviating discomfort of burning sensation¹. The tribal communities of Odisha make root paste of *Dendrobium plicatile* Lindl. in combination with black pepper powder (1 g) and ingest it on an empty stomach for 21 days for treating skin allergies. The same paste is directly applied to eczematous lesion for curing it⁴. *Habenaria longicorniculata* Graham tuber can be pasted and mixed with an equal proportion of turmeric powder and applied on the Leucoderma affected skins for 2 weeks to cure Leucoderma⁴⁰. Blebs or bullae on the palm can be cured with *Habenaria susannae* (L.) R.Br.⁹. *Rhynchostylis retusa* (L.) Bl. plant can be used for softening human skin,

Table 1 — Orchids used for respiratory remedies

Plant	Plant part used	Disease cured	References
<i>Dendrobium nodosum</i> Dalzell	Leaves and pseudobulbs	Asthma	22
	Whole plant	Bronchitis	
<i>Dendrobium plicatile</i> Lindl.	Whole plant	Asthma and bronchitis	23
<i>Eulophia epidendreaea</i> (J. König ex Retz.) C.E.C. Fisch. 1928 and <i>Eulophia ochreatea</i> Lindl.	Rhizomes	Cough and cold	48
<i>Eulophia nuda</i> Lindl.	Tubers	Bronchitis	25
<i>Malaxis acuminata</i> (D. Don.)	Whole plant	Tuberculosis	26
<i>Malaxis acuminata</i> (D. Don.)	Pseudobulbs	Tuberculosis, bronchitis, phthisis	27
<i>Pholidota chinensis</i> Lindl.	Pseudobulbs	Bronchitis	34
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Whole plant	Tuberculosis and asthma	29
<i>Vanda spathulata</i> (L.) Spreng.	Flower	Asthma, tuberculosis	30,1
<i>Vanda tessellate</i> (Lindl.) Rehb. f.	Whole plant	Bronchitis	31
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Roots	Asthma	8
<i>Aerides maculosa</i> Lindl.	Roots	Tuberculosis	4
<i>Bulbophyllum odoratissimum</i> (Sm.) Lindl. ex Wall.	Whole plant	Tuberculosis	79

Table 2 — Use of Orchids in dermatological remedies

Plant	Plant part used	Disease cured	References
<i>Cymbidium aloifolium</i> (L.) Sw	Pseudobulbs	Burns and sores	38
<i>Dendrobium nodosum</i> Dalzell	Whole plant	Burning sensation	1
<i>Dendrobium plicatile</i> Lindl.	Root paste	Skin allergies	4
<i>Habenaria longicorniculata</i> Graham	Tuber	Leucoderma	35
<i>Habenaria susannae</i> (L.) R.Br.	Whole plant	Blebs or bullae	8
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Leaf paste	Softening of the skin and heals wounds	15
<i>Arundina graminifolia</i> (D. Don) Hochr.	Whole plant	Cracks on skin	24
<i>Bulbophyllum neilgherrense</i> Wight	Pseudobulbs and leaves	Leukoderma	36, 79
<i>Bulbophyllum fuscopurpureum</i> Wight	Pseudobulb	Skin disease	35
<i>Bulbophyllum sterile</i> (Lam.)	Whole plant	Pimples and skin allergy	
<i>Dactylorhiza hatagirea</i> (D. Don.)	Whole plant	Astringent properties	33
<i>Eulophia ochreatea</i> Lindl.	Whole plant		34
<i>Dendrobium nodosum</i> Dalzell	Whole plant		22
<i>Dendrobium amoenum</i> Wallich ex Lindley	Whole plant	Burnet skin	42
<i>Bulbophyllum nilgherrense</i> Wight	Pseudobulbs	Skin Allergy	79

also the leaf paste of the plant can heal wounds¹⁷. *Arundina graminifolia* (D. Don) Hochr. plant is used for healing skin cracks²⁶. The tribal communities in the reserve forest of Nilgiri prepare paste from pseudobulbs of *Bulbophyllum fuscopurpureum* Wight and apply on affected parts of the skin to cure skin diseases⁴⁰. They also use crushed whole plant of *Bulbophyllum sterile* (Lam.) Suresh Syn: *Bulbophyllum nilgherrense* Wight to cure pimples and skin allergy. Pseudobulbs and leaves of *Bulbophyllum nilgherrense* Wight are pasted, mixed with cow milk and consumed for curing leukoderma⁴¹. Leaves and pseudobulbs of *Bulbophyllum careyanum* (Hook.) Spreng. are used for treating burns⁴².

Use of orchids in Otolaryngological (Ear, Nose and Throat) remedies

The extract from the *Cymbidium aloifolium* (L.) Sw pod can address earaches^{43,1} (Table 3), otitis, and inflammatory conditions⁹. Salep derived from its pseudobulbs can treat eye weakness and vertigo^{44,38}. *Rhynchostylis retusa* (Linn.) Bl. leaves paste are applied externally on throat to cure throat inflammation. The leaf juice of *Vanda tessellata* (Lindl.) Rchb. f. is applied for treating earache. Two to three drops of *Acampe praemorsa* (Roxb.) Blatt. & McCann leaf juice in the ear can relieve earache¹. Filtrate obtained after boiling and filtering powdered *Aerides crispum* plant in neem oil, can cure ear pain and deafness with ~2-3 drops of this filtrate in ears, once during night for 3 days⁴⁵. Flower stalk and rhizome paste of *Arundina graminifolia* (D. Don) Hochr. is used for treating ear pain⁴⁶. *Dendrobium nodosum* Dalzell plant is used for the treatment of throat infections and has expectorant property²². In Uttar Pradesh *Dendrobium plicatile* Lindl. is used for sore throat²⁵. The fresh tender shoot tip juice of

Dendrobium macrostachyum is used to cure earaches^{47,48}. *Vanda testacea* (Lindl.) Rchb.f. fresh leaf extract can also treat earaches⁴⁹.

Use of orchids in orthopedic remedies

Aerial roots paste of *Cymbidium aloifolium* (L.) Sw is used to cure fractured bones⁹ (Table 4). Crushed bulbs of *Eulophia herbacea* Lindl is fried in mustard oil and applied to joints thrice daily to treat rheumatism²⁷. Tuber of *Habernaria pectinata* (D. Don.) can cure arthritis⁹. *Malaxis muscifera* (Lindl.) is used to treat rheumatism^{50,51}. People of Kadar tribes applies *Pholidota pallida* Lindl. rhizome paste to cure finger abscess⁴¹. Rheumatic pains can be relieved by pseudobulbs paste of *Pholidota pallid* Lindl. The pseudobulbs are pasted, mixed with mustard oil and applied to joints^{52,9}. Leaf and root paste of *Pholidota imbricata* (Roxb.) Lindl. is used to heal fractures and rheumatism³². *Pholidota pallida* Lindl. roots can be used for treating rheumatism⁹. The aerial roots and leaves of *Vanda tessellata* (Lindl.) Rchb. f. is used for treating fractured bones. Its grounded aerial roots and leaves with *Phoenix loureiroi* Kunth bud is pasted and the paste is used as plaster over fractured bone, and the extract of the same is served orally, five spoons twice a day till cured. The roots can also treat rheumatism and similar disorders⁴¹. *Vanda tessellata* (Lindl.) Rchb. f. roots are used with various medicated oils externally to address rheumatism³³. Leaf poultice prepared from *Vanda tessellata* (Lindl.) Rchb. f. is applied to relieve sprains, lumbago and back pain¹. *Acampe praemorsa* (Roxb.) Blatt. & McCann and *Asparagus racemosus* Wild. root paste is consumed on empty stomach for 15 days to alleviate arthritis. *Acampe praemorsa* (Roxb.) Blatt. & McCann plant is used to reduce pain in the joints, muscles or fibrous tissues¹ and the leaf paste can cure

Table 3 — Orchids used for otolaryngological remedies

Plant	Plant part used	Disease cured	References
<i>Cymbidium aloifolium</i> (L.) Sw	Juice extracted from the pod;	Earache, otitis, inflammatory conditions,	37,1,8
	Salep made from the pseudobulbs	Weakness of eyes and vertigo	38
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Leaves	Throat inflammation	1
<i>Vanda tessellata</i> (Lindl.) Rchb. f.	Leaf juice	Earache	1
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Leaf juice	Earache	1
<i>Aerides crispum</i> Lindl.	Filtrate made with plant boiled in neem oil	Ear pain and deafness	39
<i>Arundina graminifolia</i> (D. Don) Hochr.	Flower stalk and rhizome paste	Ear pain and rheumatism	40
<i>Dendrobium nodosum</i> Dalzell	Whole plant	Throat infections and has expectorant property	22
		Sore throat	23
<i>Dendrobium plicatile</i> Lindl.	Whole plant	Sore throat	23
<i>Dendrobium macrostachyum</i> Lindl.	Tender shoot tip juice	Earache	47, 48
<i>Vanda testacea</i> (Lindl.) Rchb. f.	Fresh leaf extract	Earache	49

Table 4 — Use of Orchids for orthopedic remedies

Plant	Plant part used	Disease cured	References
<i>Cymbidium aloifolium</i> (L.) Sw	Paste made from the aerial roots	Fractured bones	8
<i>Eulophia herbacea</i> Lindl.	Residue of crushed bulbs fried in mustard oil	Rheumatism	25
<i>Habenaria pectinate</i> (D. Don.)	Tuber	Relieve arthritis	8
<i>Malaxis muscifera</i> (Lindl.)	Whole plant	Rheumatism	41, 42
<i>Pholidota pallida</i> Lindl.	Paste made from rhizome	Abscess	36
	Paste made from pseudobulbs mixed with mustard oil	Rheumatic pains	43
<i>Pholidota imbricate</i> (Roxb.) Lindl.	Leaf and root paste	Fractures and rheumatism	29
<i>Pholidota pallida</i> Lindl.	Roots	Rheumatism	8
<i>Vanda tessellate</i> (Lindl.) Rchb. f.	Aerial roots and leaves	Treating fractured bones	1
	Whole plants with various medicated oils	Rheumatism	30
	Leaf poultice	Sprains, lumbago and back pain	1
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Root paste made with <i>Asparagus racemosus</i> Wild. is eaten on empty stomach for 15 days	Arthritis	8
		Reduces pain in the joints, muscles or fibrous tissues (<i>i.e.</i> , rheumatism)	1, 49
	Leaf paste	Fractured bones, rheumatism	44
<i>Arundina graminifolia</i> (D. Don) Hochr.	Flower stalk and rhizome	Rheumatism and antiarthritis	40
<i>Bulbophyllum nilgherrense</i> Wight	Chopped pseudobulbs cooked in coconut oil	Rheumatism	1
	Paste made from whole plant	Swellings	
<i>Coelogyne cristata</i> Lindl.	Pseudobulbs	Bone fractures	45, 46, 23
<i>Pholidota imbricate</i> (Roxb.) Lindl.	Pseudobulbs	Bone fractures	45
<i>Dendrobium amoenum</i> Wallich ex Lindley (1830: 78)	Whole plant	Dislocated bones	42, 49
<i>Dendrobium crepidatum</i> Lindley & Paxton	Pseudobulbs paste	Bone fractures	
	Tonic prepared from stem	Arthritis and rheumatism	
<i>Acampe carinata</i> (Griff.)	Root paste	Rheumatism,	48, 15
<i>Bulbophyllum neilgherrense</i> Wight	Pseudobulbs	Rheumatism	79
<i>Bulbophyllum odoratissimum</i> (Sm.) Lindl. ex Wall.	Whole plant	Fracture	79
<i>Bulbophyllum sterile</i> (Lam.)	Pseudobulb	Rheumatism	42
<i>Thunia alba</i> (Lindl.) Rchb. f.	Plant paste can treat fractured and dislocated bones	Entire plant	80, 78

fractured bones⁵³. Flower stalk and rhizome paste of *Arundina graminifolia* (D. Don) Hochr. are used against rheumatism⁴⁶. *Arundina graminifolia* (D. Don) Hochr. plant can cure arthritis²⁶. Chopped pseudobulbs of *Bulbophyllum nilgherrense* Wight are cooked in coconut oil, that oil is applied to address rheumatism, and the paste made from the whole plant is applied on swellings¹. By the people of Kumaon Hills of Uttarakhand *Coelogyne cristata* Lindl. and *Pholidota imbricata* (Roxb.) Lindl. are used for treating bone fractures⁵⁴. In tribal and folk medicine, the pseudobulbs of *Coelogyne stricta* (D. Don) Schltr. is used for healing bone fractures⁵⁵, the pseudobulbs paste is also applied externally for healing fractured limbs in Northeastern India²⁵.

Use of orchids to relief fever

Rhynchosytilis retusa (Linn.) Bl. fresh roots decoction (100 mL) and 5 g young shoot paste of *Andrographis paniculata* (Burm. f.) Wall. ex Nees is

taken orally twice a day for 5 days to cure malarial fever⁵⁶ (Table 5). *Vanda tessellate* (Lindl.) Rchb. f. leaves paste is applied on the body for curing fever⁴. The pseudobulbs of *Coelogyne stricta* (D. Don) Schltr are used to address headache and fever⁵⁷. Leaves, roots, as well as whole *Cymbidium aloifolium* (L.) Sw plants are used to cure various body ailments⁴¹, particularly the leaf juice cures fever⁴⁴. Tuber extract of *Dactylorhiza hatagirea* (D. Don.)⁴, decoction made from *Spiranthes sinensis* (Pers.) Ames and infusion of *Epipactis helleborine* (L.) leaves⁵⁸, *Geodorum recurvum* (Roxb.) tuber¹⁵, *Dactylorhiza hatagirea* (D. Don.)⁴, *Habenaria commelinifolia* (Roxb.) Wall. ex Lindl. tubers⁵⁷ are used for fever management. A decoction of dried *Geodorum recurvum* tuber (100 g) with 20-25 garlic cloves and 15-20 g of black pepper is consumed twice a day for 15 days to combat against malarial fever. Whole plants of *Dendrobium plicatile* Lindl.²⁵, *Dendrobium nodosum* Dalzell²⁴ and

pseudobulbs of *Malaxis acuminata* (D. Don.)³⁰ also cure fever.

Use of orchids in remedies to human reproduction related problems

Dactylorhiza hatagirea (D. Don.) is mentioned in the Ayurvedic and Unani system of medicine, as it has aphrodisiac properties that increases vigor and vitality^{37,38} (Table 6). In Karnataka, a halva prepared from *Flickingeria nodosa* (Dalzell) Seidenf. has aphrodisiac property and is used as folk medicine²⁴. *Dendrobium plicatile* Lindl. alleviate debility and seminal loss. Salep or Salam Mishri, prepared *Eulophia nuda* Lindl. roots and *Orchis latifolia* Linn., possess aphrodisiac qualities. *Eulophia campestris* Wall. Ex

Lindl.; *Habenaria intermedia* (D. Don.) and *Coelogyne cristata* Lindl. are also recognized for their aphrodisiac properties. From the tubers of *Habenaria intermedia* (D. Don.) and *Coelogyne cristata* Lindl. a hot drink is made and consumed to enhance sexual desire, performance and pleasure⁵⁹. Tribal people of Odisha boil dried tubers of *Habenaria commelinifolia* (Roxb.) Wall. ex Lindl. with equal amount of roots of *Saraca indica* L. in one-liter water (till the water reduces to 100 mL) to prepare a folk medicine. Nearly 6-8 drops from the decoction are consumed in empty stomach for 10 days to cure spermatorrhea. The Dongria Kondh tribe of Niyamgiri Hills Odisha uses a combination of 10 g dried powdered tubers of *Eulophia herbacea* Lindl., 5 g dried

Table 5 — Orchids used for curing fever

Plant	Plant part used	Disease cured	References
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Fresh roots	Malarial fever	47
<i>Vanda tessellata</i> (Lindl.) Rchb. f.	Leaves paste	Fever	4, 49
<i>Coelogyne stricta</i> (D. Don) Schltr.	Pseudobulbs	Body ailments	36
<i>Cymbidium aloifolium</i> (L.) Sw	Whole plant	Body ailments	
	Pseudobulbs	Chronic illness	38
	Leaf juice	Fever	
<i>Dactylorhiza hatagirea</i> (D. Don.)	Tuber extract	Fever	4
<i>Habenaria intermedia</i> (D. Don)			49
<i>Habenaria commelinifolia</i> (Roxb.) Wall. ex Lindl.			15
<i>Dendrobium plicatile</i> Lindl.	Whole plant	Fever	23
<i>Dendrobium nodosum</i> Dalzell	Whole plant		22
<i>Malaxis acuminata</i> (D. Don.)	Pseudobulbs	Fever	27
<i>Corymborkis veratrifolia</i> (Reinw.) Blume	Fresh leaf juice	Fever of children	6, 48
<i>Pholidota cantonensis</i> Rolfe	Entire plant	High fever	80, 78
<i>Coelogyne cristata</i> Lindl.	<i>Coelogyne cristata</i> Lindl. (fresh juice or paste)	Fever	78
<i>Coelogyne nitida</i> (Wall. Ex D. Don.) Lindl.	Pseudobulbs juice	Headaches and fever	63, 78
<i>Coelogyne prolifera</i> Lindl.	Pseudo bulbs paste	headache and fever	49
<i>Satyrium nepalense</i> (D. Don.)	Decoction from tubers, roots, and stems	Fever, and malaria	81, 82, 83

Table 6 — Orchids used for curing human reproduction related problems

Plant	Plant part used	Disease cured	References
<i>Dactylorhiza hatagirea</i> (D. Don.)	Whole plant	Aphrodisiac properties	32, 33
<i>Flickingeria nodosa</i> (Dalzell) Seidenf.	Whole plant	Aphrodisiac property	22
<i>Dendrobium plicatile</i> Lindl.	Whole plant	Debility and seminal loss	6
<i>Eulophia nuda</i> Lindl. And <i>Orchis latifolia</i> Linn.	Roots	Aphrodisiac property	4
<i>Eulophia campestris</i> Wall. ex Lindl.,	Tubers	Aphrodisiac property	54, 63
<i>Habenaria intermedia</i> (D. Don)			
<i>Habenaria commelinifolia</i> (Roxb.) Wall. ex Lindl.	Dried tubers	Spermatorrhea	15
<i>Eulophia herbacea</i> Lindl.	Dried tuber	Aphrodisiac properties	6
<i>Malaxis acuminata</i> (D. Don.)	Pseudobulbs	Enhances sperm production	27, 49
<i>Malaxis muscifera</i> (Lindl.)	Whole plant	Male sterility	42
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Whole plant	Treat menstrual disorders	29
<i>Habenaria roxburghii</i> Nicolson	Tubers	Controls burning micturition	29
<i>Acanthephippium bicolor</i> Lindl.	Leaf extract	Treating urinary tract infections	51
<i>Bulbophyllum albidum</i> A. Rich.	Leaves and pseudobulbs	Strengthening weak uterus for conception	52
<i>Bulbophyllum cariniflorum</i> Rchb.	Dried root	Induce abortion	15
<i>Coelogyne cristata</i> Lindl.	Pseudobulbs	Aphrodisiac property	50
<i>Acampe papillosa</i> (Lindl.)	Crushed roots	Uterine diseases and secondary syphilis	48,
<i>Dendrobium normale</i> Falc.	Entire plant	Aphrodisiac properties	84, 48
<i>Geodorum densiflorum</i> (Lam.) Schltr.	Fresh root paste	Regularize menstrual cycle	48

leaves of *Withania somnifera* (L.), 5 g *Curculigo orchoides* Gaertn., 5 g black pepper in a cup of water and consumed orally for 20 days as aphrodisiac material. In the Mondanala and Sutanguni places in the Niyamgiri Hill Range Odisha, the Dongria Kondh tribe prepares a paste by mixing 2 g of dried root of *Bulbophyllum cariniflorum* Rchb., 1 g of black pepper with 5 mL of cow milk. Half spoon of the paste is consumed with a cup of water by women for 5-10 days to induce abortion during first trimester of pregnancy¹⁷. Pseudobulbs of *Malaxis acuminata* (D. Don.) can enhance sperm production^{30,58} while *Malaxis muscifera* (Lindl.) plants can cure male sterility⁵¹. *Rhynchostylis retusa* (Linn.) Bl. plant can treat menstrual disorders^{32,35} and *Habenaria roxburghii* Nicolson tubers are consumed before breakfast to control burning micturition³². Tribes of Kolli Hills in Namakkal district of Tamil Nadu (Eastern Ghats) use leaf extract of *Acanthephippium bicolor* Lindl. for treating urinary tract infections⁶⁰. The Kanikkar tribe of Agasthyamalai Hills (Tamil Nadu) uses leaves and pseudobulbs of *Bulbophyllum albidum* A. Rich. for strengthening weak uterus for conception⁶¹. The decoction derived from the powdered leaves *Bulbophyllum careyanum* (Hook.) Spreng. is used for postpartum recovery and for abortion induction^{62,42}. *Bulbophyllum umbellatum* Lindl. is used for congenital illnesses⁶³.

Orchids used as remedies to abdominal and gastrointestinal problems

Leaf and tuber extract of *Dactylorhiza hatagirea* (D. Don.) can cure dysentery^{4,26} (Table 7), while, the

crushed bulbs of *Eulophia ochreatea* Lindl., locally known as Mishri in Rajasthan, treat diarrhoea⁶⁴. Roots of *Rhynchostylis retusa* (Linn.) Bl. are effective against blood dysentery. About 3-4 g roots of it and 2 g *Pisum sativum* L. leaf bud are pasted and ~1g paste is administered to the patient orally on empty stomach 2 times daily for 7 days to treat blood dysentery¹⁹. *Dendrobium nodosum* Dalzell and *Dendrobium plicatile* Lindl. are used to address biliousness^{1,25}. Rhizomes of *Eulophia campestris* Wall. ex Lindl. and *Eulophia ochreatea* Lindl. treats worm infestation and other stomach problems³¹. *Pholidota pallida* Lindl. orchid pseudobulbs can combat against intestinal worms and abdominal pain⁹. The decoction prepared from *Eulophia herbacea* Lindl. leaf is effective as a vermifuge¹⁷. To cure ulcers and flatulence, 250 g tubers of *Habenaria marginata* Colebr. are boiled in one liter water to 250 mL, the decoction is taken daily with 5 mL honey on empty stomach for 14 days⁵⁸. Pseudobulb extract of *Pholidota imbricate* (Roxb.) Lindl. can address abdominal pain³². Leaf and root paste prepared from *Acampe carinata* (Griff.) Panigrahi is used to treat abdominal pain^{17,9}. *Rhynchostylis retusa* (Linn.) Bl. plant can be used to treat kidney stone³⁰. *Acampe praemorsa* (Roxb.) Blatt. and McCann leaf paste is consumed along with a clove of garlic for 7 days to relieve hyper acidity induced stomach disorder and chest pain⁹ and its leaf juice relieve abdominal pain¹. A hot beverage made from *Coelogyne cristata* Lindl. pseudobulbs relieves constipation⁵⁹. A mixture of *Habenaria plantaginea*

Table 7 — Orchids used as remedies for gastrointestinal and other abdominal problems

Plant	Plant part used	Disease cured	References
<i>Dactylorhiza hatagirea</i> (D. Don.)	Leaf extract and tuber	Control dysentery	4, 23
<i>Dendrobium nodosum</i> Dalzell and <i>Dendrobium plicatile</i> Lindl.	Whole plant	Biliousness	1, 23
<i>Eulophia campestris</i> Wall. ex Lindl.	Rhizome	Treats worm infestation and other stomach problems	34
<i>Eulophia ochreatea</i> Lindl.	Rhizome	Diarrhea	53
<i>Eulophia ochreatea</i> Lindl.	Bulbs	Vermifuge	15
<i>Eulophia herbacea</i> Lindl.	Leaf	Ulcer and flatulence	49
<i>Habenaria marginata</i> Colebr.	Tubers	Abdominal pain	29
<i>Pholidota imbricate</i> (Roxb.) Lindl.	Pseudobulbs	Intestinal worms and abdominal pain	8
<i>Pholidota pallida</i> Lindl.	Pseudobulbs	Blood dysentery	15
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Roots, leaf	Constipation	85, 49
<i>Rhynchostylis retusa</i> (Linn.) Bl.	Whole plant	Kidney stone	29
<i>Acampe carinata</i> (Griff.)	Leaf and root	Abdominal pain	15, 8
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Leaf	Hyper acidity, stomach disorder and chest pain	8, 1
<i>Coelogyne cristata</i> Lindl.	Pseudobulbs	Constipation	50
<i>Habenaria plantaginea</i> Lindl.	Tubers	Chest and stomach pain	36
<i>Liparis odorata</i> (Willd.) Lindl.	Leaf paste	Diabetic ulcer	49
<i>Satyrium nepalense</i> (D. Don.)	Decoction of tubers, roots, and stems	Diarrhea and dysentery,	81, 82, 83

tubers, black pepper and garlic can cure stomach pain⁴¹. *Dendrobium nodosum* Dalzell roots are consumed to combat against intestinal biliary colic⁴⁶.

Use of orchids as remedies to Neurological disorders

Dried powder of *Cymbidium aloifolium* (L.) Sw roots (2 g) with dried ginger (2 g), black pepper (1 g) with a cup of cow milk is taken twice a day for 2 months to reduce paralysis¹⁷ (Table 8). Salep of *Dactylorhiza hatagirea* (D. Don.) tubers is used as a nervine tonic^{37,38}. Tubers of *Dactylorhiza hatagirea* (D. Don.)²⁴ and *Eulophia campestris* Wall. ex Lindl.⁶⁸ rhizome are used in the traditional paralysis treatment. Roots of *Vanda tessellata* (Lindl.) Rchb. f. plants are used externally along with various medicated oils in nervous disorders³³. Root powder of *Cymbidium aloifolium* (L.) Sw can recover from paralysis, while roots paste of *Acampe carinata* (Griff.) can combat neuralgia⁴⁸. *Gastrodia elata* Blume tuber relief nervous disorders⁶⁶, and whole plant of *Bulbophyllum pumilum* (Sw.) Lindl. treats epilepsy⁶⁷.

Orchids with anti-inflammatory properties

Cymbidium aloifolium (L.) Sw leaf juice has demulcent properties and used for addressing inflammatory conditions⁹. *Malaxis muscifera* (Lindl.) can cure blood inflammation⁵⁰. Pseudobulbs of *Pholidota imbricata* (Roxb.) Lindl. is pasted and mixed with coconut kernel juice, and applied on inflamed areas until the swelling or inflammation subsides¹. *Vanda tessellata* (Lindl.) Rchb. f. plants can treat inflammation³⁴. Some tribes from Kerala use whole plants of *Acampe praemorsa* (Roxb.) Blatt. & McCann to treat inflammation¹. *Arundina*

graminifolia (D. Don) Hochr. plant are used as demulcent²⁶. *Bulbophyllum kaitiense* Rchb. f. has anti-inflammatory properties⁶⁸. *Dendrobium plicatile* Lindl. is used for the treatment of phlegm disorder⁷. Pseudobulbs of *Malaxis acuminata* (D. Don.) soothe burning sensation³⁰.

Orchids used as remedies for other diseases

Dendrobium plicatile Lindl. decoctions along with other plants can cure bile disorders, blood and phlegm, and individually can act as a stimulant and tonic⁷. This plant is used in Rasayana therapy and is traded as Jibanti in West Bengal⁶⁹. For their rejuvenating effects and nutraceutical ability some *Eulophia* species are used as both tribal food and medicine⁴. *Eulophia herbacea* Lindl. has nutritional, antioxidant, anti-hyperlipidemic, anti-arthritis, anti-inflammatory, antimicrobial and immune-modulator properties⁷⁰. The dried tubers of *Habenaria intermedia* (D. Don), a vital ingredient in formulations like Asoka Ghrita, Amrtaprasa Ghrita, Dashmularishta, Chagaladya Ghrita and Chyavanprash, those exhibit depurative, rejuvenating, and expectorant qualities⁴. *Malaxis muscifera* (Lindl.) can counteract fever, dysentery, external and internal hemorrhage, and general weakness^{50,51}. Pseudobulbs of *Pholidota chinensis* Lindl. are used to cure duodenal ulcer, scrofulous glands of neck and toothache³¹. *Rhynchostylis retusa* (Linn.) Bl. plant parts or whole plant can be used to treat infantile epilepsy³². *Vanda spathulata* (L.) Spreng. flowers are consumed to treat mania^{33,1} and plant juice is given to temper bile and to abate frenzy¹. The *Vanda tessellata* (Lindl.) Rchb. f. plant roots have alexiteric and antipyretic properties³³. These plants are also used

Table 8 — Orchids used as remedies for neurological disorders and inflammation

Plant	Plant part used	Disease cured	References
<i>Cymbidium aloifolium</i> (L.) Sw	Roots	Paralysis	15
<i>Dactylorhiza hatagirea</i> (D. Don.)	Tubers	Nervine tonic, Medicine of paralysis	32, 33, 24
<i>Eulophia campestris</i> Wall. ex Lindl.	Rhizome	Paralysis	54
<i>Vanda tessellata</i> (Lindl.) Rchb. f.	Whole plant	Nervous disorders	30
<i>Cymbidium aloifolium</i> (L.) Sw	Leaf	Inflammatory conditions	8
<i>Malaxis muscifera</i> (Lindl.)	Whole Pant	Blood inflammation	41
<i>Pholidota</i> Lindl. ex Hook	Pseudobulbs	Swelling or inflammation	1
<i>Vanda tessellate</i> (Lindl.) Rchb. f.	Plants	Inflammation	31
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Whole plant	Inflammation	1
<i>Arundina graminifolia</i> (D. Don) Hochr.	Whole plant	Antidote and demulcent	24
<i>Bulbophyllum kaitiense</i> Rchb. f.	Whole Plant	Anticancer, anti-inflammatory property	55
<i>Dendrobium plicatile</i> Lindl.	Plant	Phlegm disorder	6
<i>Malaxis acuminata</i> (D. Don.)	Pseudobulbs	Soothe burning sensation	27
<i>Cymbidium aloifolium</i> (L.) Sw	Root powder	Paralysis	48
<i>Acampe carinata</i> (Griff.)	Root paste	Neuralgia	
<i>Gastrodia elata</i> Blume	Tuber	Nervous disorders	66, 48
<i>Bulbophyllum pumilum</i> (Sw.) Lindl.	Whole Pant	Epilepsy	67

for treating hiccup, piles, and boils on the scalp³⁴. *Vanda coerulea* Griff. ex Lindl. is used for treating glaucoma and blindness by using flower juice as eye drops⁷¹. *Vanda cristata* Wall. ex Lindl. leaves cures cough and inhibits the growth of foodborne pathogens like *Klebsiella pneumoniae*, *Escherichia coli* and *Salmonella typhi*^{72,73}. The tuber extract of *Habenaria roxburghii* Nicolson species when eaten with sugar gives a cooling effect to the body⁴¹. Root paste of *Acampe carinata* (Griff.) Panigrahi is used on snakebite and scorpion sting¹⁷. Fresh roots of *Acampe praemorsa* (Roxb.) Blatt. & McCann are boiled to a concentrated liquid, 2 teaspoons of this decoction along with 5 teaspoons of honey is consumed twice a day for 5 days for treating cough⁵⁶, the root paste can be applied externally to cure snakebite and scorpion sting⁹. Fibers of *Acampe praemorsa* (Roxb.) Blatt. & McCann orchid capsules are used for healing wounds. On old wounds, the seeds of this orchid are also directly used as antibiotic³³. The leaves paste of *Aerides multiflorum* Roxb. is applied as poultice on cuts and wound⁵⁸. The roots of *Arundina graminifolia* (D. Don) Hochr. orchid is used in snakebite and intestinal biliary colic⁴⁶. *Bulbophyllum kaitiense* Rchb. f. have anticancer, antioxidant and antimicrobial activity⁴⁰. Tubers of *Dactylorhiza hatagirea* (D. Don.) and *Habenaria roxburghii* Nicolson cure diabetes^{26,32}. Tubers of *Dactylorhiza hatagirea* (D. Don.) cure kidney complaints⁷⁴. *Cymbidium aloifolium* (L.) Sw has purgative property⁴¹. *Dendrobium nodosum* Dalzell, *Dendrobium plicatile* Lindl.⁷ and *Eulophia ochreatea* Lindl.³⁹ purify blood and cure blood disorders. Pseudobulbs of *Malaxis acuminata* (D. Don.) cure bleeding diathesis, and soothe burning sensation³⁰. *Eulophia herbacea* Lindl has anti-cancerous properties⁷⁰. Leaves and tubers of *Eulophia epidendreae* (J. König ex Retz.) C.E.C. Fisch. 1928⁷⁵, tubers of *Eulophia nuda* Lindl.²⁷ and whole plant of *Eulophia herbacea* Lindl have anti-tumor properties. Tubers of *Eulophia nuda* Lindl.²⁷ and *Habenaria commelinifolia* (Roxb.)⁵⁷ as well as crushed leaves of *Habenaria pectinate* (D. Don.)⁹ are used to recover from snake bites. *Dendrobium nodosum* Dalzell roots are used as antidote for snakebite⁴⁶. Tubers of *Habenaria intermedia* (D. Don.) are consumed to get relief from stress⁷⁶. Pseudobulbs of *Bulbophyllum lilacinum* Ridl. can keep body fresh by reducing restlessness and fatigue^{77,48}. The decoction derived from the roots of *Tropidia curculigoides* Lindl. can cure diarrhea, and boiled extract obtained from entire

plant can cure malaria⁷⁷. *Bulbophyllum neilgherrense* Wight. has been used by South Indian tribes for curing heart disease. *Pleione praecox* (Sm.) D. Don pseudobulb powder, along with milk, serves as a traditional tonic and energizer, also, when applied externally as paste it can heal wounds⁷⁸.

Conclusion

Amidst the abundance of orchids with medicinal properties in our country, only a fraction has received the attention of scientific documentation, leaving a wealth of untapped potential. Presently, there is a noticeable knowledge gap in on the precise methodologies of preparation and utilization of orchid-based herbal medicines. To harness the full therapeutic potential of these orchids, it is imperative that the complete formulations and applications of orchid-based herbal medicines are scientifically recorded. A thorough analysis of the existing scientific literature reveals a remarkable versatility in the applications of medicinal orchids. These botanical treasures hold the promise of addressing a spectrum of health concerns, including respiratory ailments, dermatological conditions, human reproductive system disorders, otolaryngological issues, fevers, abdominal and gastrointestinal problems, neurological conditions, and inflammatory diseases. Furthermore, certain orchids exhibit the potential to aid in the rehabilitation of individuals affected by stress, snake bites, and scorpion toxins. In summary, this comprehensive examination of medicinal orchids underscores their remarkable versatility and the breadth of health issues they can potentially address. However, it also emphasizes the need for rigorous scientific documentation of these botanical resources, paving the way for a more profound understanding of their applications in the field of traditional and alternative medicines.

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Conflict of Interest

The authors declare no potential conflict of interest among them.

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Author Contributions

SSB: Conceptualization, writing original draft; review and editing the final manuscript; NSK: Written a part of the original draft; RP: Editing final manuscript; BKA: Written a part of the original draft; NMN: Written a part of the original draft; and SN: Written a part of the original draft.

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