

Some potent medicinal Orchids of Similipal Biosphere Reserve, Odisha, India

S.P. Panda^{1*}, Z. Mazhar¹, K. Chakraborty¹, S. Dasgupta¹, D. Behera² and R. K. Nayak³

¹AJC Bose Indian Botanic Garden, Botanical Survey of India, Howrah-711103 (West Bengal), India.

²Department of Botany, Banabhumii Degree Mahavidyalaya, Mayurbhanj-757049 (Odisha), India.

³P. G. Department of Environmental Science, F. M. University, Balasore (Odisha), India.

(Corresponding author: S.P. Panda*)

(Received: 24 November 2023; Revised: 30 November 2023; Accepted: 26 December 2023; Published: 15 January 2024)

(Published by Research Trend)

ABSTRACT: A study was carried out in Similipal Biosphere Reserve (SBR) of Odisha for survey and documentation medicinally potent orchids. During the study attention was paid to study the habitat details, ecology, region of occurrence, flowering and medicinal importance of orchids dwelling in SBR. Several herbaria and relevant literatures were consulted for correct identification of the species and documentation as well as validation of medicinal uses of the orchids. A total of 23 species of orchids were enlisted during the study belonging to 14 genera (14 epiphytic, terrestrial and 01 having both terrestrial and epiphytic nature).

Keywords: Orchid, Diversity, Kuldiha, Therapeutic importance, Conservation.

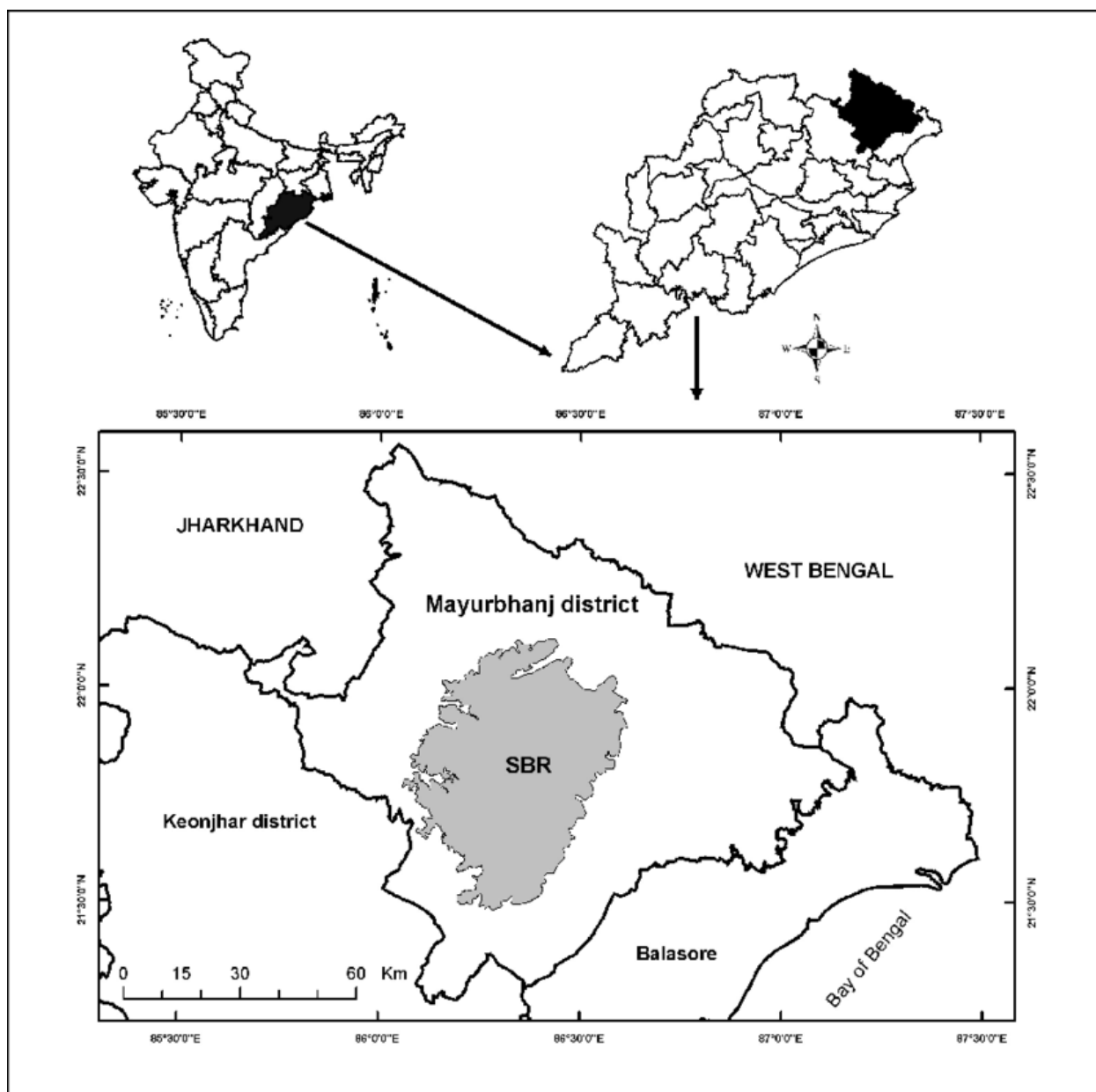
INTRODUCTION

Orchids are not only the most beautiful flower bearing plants having high ornamental value but has also been gifted by nature with high medicinal properties. Orchids are monocotyledonous angiospermic herbaceous plants that are grouped in the family, Orchidaceae, which includes approximately 750 genera and 17, 000 species (Misra *et al.*, 2007). Many orchids possess antimalarial, antibacterial, antiviral and even anticancerous properties (Panda *et al.*, 2015). These properties in medicinal orchids are attributed to a variety of phyto-constituents like alkaloids, flavonoids, terpenes etc. (Misra, 2004). The people of ancient India were very well versed with the medicinal importance of orchids as we can find references of various orchids in ancient ayurvedic literatures such as Charak Samhita. In India, the orchids are employed for various therapeutic purposes in different systems of traditional medicine. In the Ayurvedic system of medicine, a group of eight drugs, known as Astavarga, is employed in the preparation of a number of rejuvenating formulations and tonics. Astavarga is an important ingredient of various classical Ayurvedic formulations (Singh and Duggal 2009) like Chyawanprash. Recently, it has been reported that orchid molecules are important in reducing fever, increasing the white blood cell count, curing eye diseases, treating fatigue and headache, and most importantly, as anti-cancer agent. (Bulpitt, 2005). The Similipal Biosphere Reserve (SBR) is the only Biosphere Reserve of Odisha State comprising of Similipal National Park and Similipal Tiger Reserve in the district of Mayurbhanj. It lies in between 21° 28' to 22°

08' North longitude and 86° 4' to 86° 37' East latitude. The three zones of SBR is consisted of the core zone of 845 Km², whereas the buffer zone is approximately 2174 Km² and the transitional zone encircles the buffer area by 10 Km and around 2559 Km². As a whole, the forest area is approximately 5578 Km². The forest type is of tropical to subtropical. The SBR serves as an ideal abode of diverse orchid flora comprising of both threatened and endemic.

MATERIAL AND METHODS

Frequent field explorations were undertaken at least three times in a year mostly in winter, summer and monsoon to different parts of SBR to allocate the orchids in their natural habitats and record the information related to thereof. Good quality photographs of orchids were taken along with recording of the flowering and fruiting time along with all other relevant information. Interactions were made with the local tribals and traditional healers to know the possible medicinal use of the orchids and also revalidated with the available literature (Kirtikar and Basu 1935, Chopra *et al.* 1956, Saxena and Dutta 1975, Agarwal and Ghosh 1985, Satyavati *et al.* 1987, Warriar *et al.* 1994-96 and Chandra 1998). Only few flowers were collected whenever necessary, for identification. The species were identified by following recent floras and revisionary works. A list of 23 medicinally important orchids was prepared in tabular format based on botanical name, habit, ecology, locality of occurrence, flowering along with their medicinal uses.



Map. 1. Similipal Biosphere Reserve.

RESULT AND DISCUSSION

The present study revealed 23 orchids of medicinal importance belonging to 14 genera and 23 species out

of which 14 were epiphytes, 08 were terrestrial and 01 was having both epiphytic and terrestrial habit.

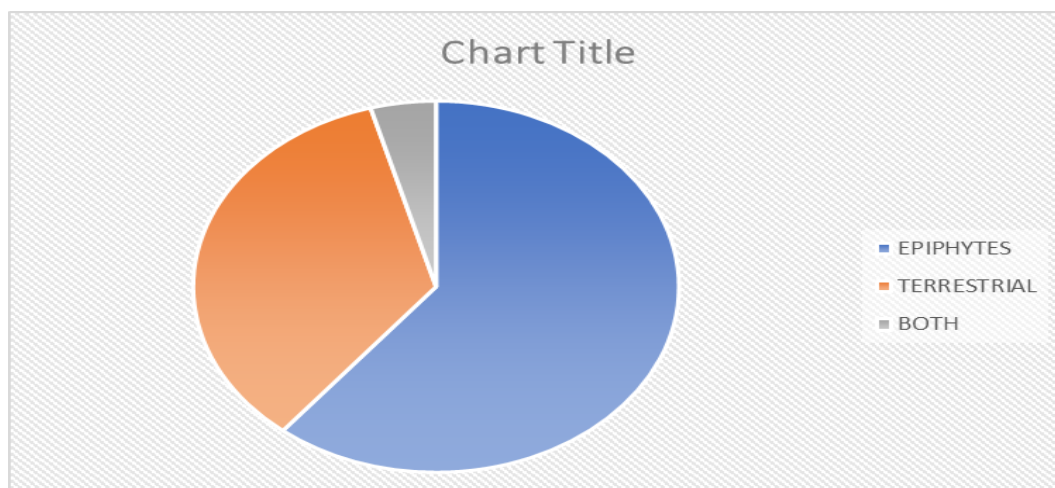
Table 1: Medicinal Orchids and their Uses.

Sr. No.	Botanical Name	Habit	Ecology	Locality	Flowering	Uses
1.	<i>Acampe carinata</i> (Griff.) Panigr.	E	MD to SE	Jamuani, Jenabila, Kabatghai, Lulung	October-January	The paste of root are used in treating snake bites. The leaf paste are used in stomach disorder, hyperacidity and rheumatic pain.
2.	<i>Acampe praemorsa</i> (Roxb.) Blatt. & Mc Cann	E	Open & MD Forests	Mostly buffer area of SBR	August – January	The roots have medicinal properties which are used against arthritis and rheumatism.
3.	<i>Aerides multiflora</i> Roxb.	E	MD to SE	Lulung, Gudugudia, Jenabil	June – July	Root paste are used in curing arthritis, rheumatism and also

						used against cuts and wounds.
4.	<i>Aerides odorata</i> Lour.	E	Open & MD Forests	Sitakund, Debakund, Chahala	June-July	The leaf juice are used in treating tuberculosis. The root paste are used against joint pain and swellings.
5.	<i>Bulbophyllum cariniflorum</i> Rchb.f.	E	SE to E	Jenabil, Bhanjabasa	July-August	Root paste is used to induce abortion
6.	<i>Bulbophyllum crassipes</i> Hook.f.	E	MD to SE	Pithabata, Sitakund, Pudadiha	October	The pseudobulb is used in treating stomach related problems. It possesses antioxidant, anti-inflammatory and anticancerous properties
7.	<i>Bulbophyllum umbellatum</i> Lindl.	E	SE to E	U. Barakamuda	April – May	The herb is used as longevity enhancer
8.	<i>Cymbidium aloifolium</i> (L.) Sw.	E	Open & MD Forest	Buffer areas of SBR	April – June	Root powder is used against paralysis
9.	<i>Dendrobium herbaceum</i> Lindl.	E	MD to SE	Chahala, Bhanjabasa, Jenabila	February – April	Leaves paste is used against syphilis.
10.	<i>Eulophia nuda</i> Lindl. (= <i>Eulophia spectabilis</i> Suresh)	T	MD to SE	Gudugudia, Chahala, Jenabila	May – June	Dried tuber is taken against aphrodisiac. The leaf decoction is administered in case of vermifuse
11.	<i>Dendrobium macraei</i> Lindl. (= <i>Flickingeria macraei</i> (Lindl.) Seidenf.)	E	SE to E	Jenabila, Bhanjabasa, Meghasani	July – September	Root paste is used in curing skin diseases such as allergy and eczema
12.	<i>Eulophia picta</i> (R.Br.) Ormerod (= <i>Geodorum densiflorum</i> (Lam.) Schltr.)	T	MD to SE	Sarat, Debakund	July – August	The plant acts as anti-diarrhoeal. Root paste is used in irregular menstrual cycle in women.
13.	<i>Eulophia recurva</i> (Roxb.) M.W. Chase, Kumar & Schuit. (= <i>Geodorum recurvum</i> (Roxb.) Alston)	T	Open & MD Forest	Sitakund, Gududia, Debakund	May – June	A decoction of dried tuber is used to cure malarial fever. The root paste is used to suppress tumors.
14.	<i>Habenaria commelinifolia</i> (Roxb.) Wall. ex Lindl.	T	MD	Lulung, Nawana	August – September	Roots are medicinally important and used in case of urinary troubles. Dried root is also administered in spermatorrhea
15.	<i>Habenaria furcifera</i> Lindl.	T	MD to SE	Gudugudia	July – August	Tuber paste is used as ointment against cut and wounds
16.	<i>Luisia trichorhiza</i> (Hook.) Blume	E	MD	Jamuani, Chahala, Gudugudia	March – July	Plant paste is used in Jaundice. The root extract is used in diarrhoea (for cattle) and to reduce muscular pains in humans.
17.	<i>Nervilia concolor</i> (Blume) Schltr. (= <i>Nervilia aragoana</i> Gaudich.)	T	MD	Lulung, Debakund	May – June	The plant acts as thirst abeter and used in case of sickness due to delivery
18.	<i>Pecteilis gigantea</i> (Sm.) Raf.	T	Open grassland or near	Patbila, Tinadiha	August – October	The plant is used as an ingredient of Ridhi and Vridhi and also

			perennial stream line of Semi Evergreen Forest			used in case of boils on palm
19.	<i>Rhynchosyilis</i> (L.) Blume	E	Open & MD	Gudugudia, Chahala, Debakund, Lulung	May – June	The plant acts as an emollient. Pastes of leaf buds are used to cure blood dysentery. The leaf paste is applied externally to cure wounds.
20.	<i>Spiranthes sinensis</i> (Pers.) Ames	T	In open area of Marshy land	Gudugudia, Jenabil	January – March	The herb is employed in healing sores
21.	<i>Tropidia angulosa</i> (Lindl.) Blume	E/T	SE to E	U. Barakamuda, Meghasani, Bhanjabasa	August – September	The plant is used in case of diarrhea and malarial fever.
22.	<i>Vanda tessellata</i> (Roxb.) Hook. ex G.Don	E	Open, DD & MD forest	Common in buffer areas of SBR	March - May & September – November	Root is used for the treatment of sexually transmitted diseases. The root paste is also used to cure rheumatism and nervous disorders. The herb is used in case of fever, otitis media. The leaf pounded and given to ear for curing pus formation
23.	<i>Vanda testacea</i> (Lindl.) Rchb.f.	E	DD to MD	Lulung, Gudugudia, Chahala	April – May	Leaf paste is employed in case of bone fractures of cattle. The plant is also used in ear ache. The root decoction is administered to cure asthma. The plant is also used in case of hysteria.

Forest Ecology: (DD: Dry Deciduous Forest; MD: Moist Deciduous Forest; SE: Semi Evergreen Forest; E: Evergreen Forest)



Acknowledgement. The Authors are grateful to the Ministry of Environment and Forest, Govt. of India & Director, Botanical Survey of India for Financial support and Facilities for the research work. The authors also acknowledged the PCCF and Director Similipal Tiger Reserve, Govt. of Odisha for their support inside SBR.

Conflict of Interest. None

REFERENCES

Agarawal. Y. S. and Ghosh, B. (1985). Drug plants of India (Root Drugs). Kalyani Publishers, New Delhi.

- Bulpitt, C. J. (2005). The uses and misuses of orchids in medicine., *QJM*. 98(9), 625-631.
- Chandra, U. (1998). Ethno-Medico-Botanical Claims in India: A Cross-ethnic analysis. In *Medicinal plants: Indias Herbal Heritage* (Ed. Kothari, I.L., Parabia, M.H., Jadeja, G.C. and Ramanarao, T.V.). KTC Corporation, Ahmedabad, India.
- Chopra, R. N., Nayar, S. L. and Chopra, I. C. (1956). *Glossary of Indian Medicinal Plants*. CSIR. New Delhi.
- Kirtikar, K. R. and Basu, B. D. (1935). *Indian medicinal plants*. Vol. (1-4) Dehra Dun. (Rep. Edn. 1975).
- Panda, S. P., Sharief, M. U., Hameed, S. S., and Pramanik, A. (2015). Traditional phytotheraphic record of orchids of Odisha and their conservation strategies, *Ann Plant Sci.*, 4, 1204-1207.
- Satyavati, G.V., Gupta, A.K. and Tandon, N. (1987). *Medicinal plants of India*, Vol. (1-2), ICMR, New Delhi.
- Misra, S. (2004). *Orchids of Orissa*. Mahendra Singh Bishen Pal Singh, Dehra Dun.
- Misra, S. (2007). *Orchids of India*. Bishen Singh and Mahendra Pal Singh, Dehra Dun, pp. 402.
- Singh, A. and Duggal, S. (2009). Medical orchids: An overview. *Ethnobotanical leaflets*, 13, 351-363.
- Warrier, P. K., Nambiar, V. P. K. and Ramankutty, C. (1994-96). *Indian Medicinal Plants*. (Vol. 1-5). Orient Longman Ltd., Madras.

How to cite this article: S.P. Panda, Z. Mazhar, K. Chakraborty, S. Dasgupta, D. Behera and R. K. Nayak (2024). Some potent medicinal Orchids of Similipal Biosphere Reserve, Odisha, India. *Biological Forum – An International Journal*, 16(1): 223-227.