

## 19. Traditional Wisdom in Utilization of Orchids for Ethnobotanical Applications

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Orchid family is one of the largest, most diverse, and distinctive families in the flowering plant kingdom with an estimate of 20,000 to 35,000 species in 796 genera in the world. Orchids are among the most highly prized ornamental plants and exhibit an incredible range of diversity in size, shape, and color of their flowers. They are known for their longer lasting and bewitchingly beautiful flowers, which fetch a very high price in the domestic and international market. Diversity in orchids is so large that there are terrestrial, epiphytic, and also saprophytic orchids. The word 'orchid' originated from Greek word 'Orchis', which literally means 'testicle'. It was Theophrastus, who first used the Greek word 'Orchis' to indicate the particular group of plants whose dried and chopped roots were used in traditional pharmacopoeia of Greece and neighboring Asia Minor as antidepressants and stimulants. Even today in some rural areas of these countries "salep", a nutritious drink prepared from the dried tubers of certain orchids, is found commonly. In Linnaeus's *Species Plantarum*, orchids are described as two semi-globular underground tubers, placed side-by-side, resembling human testicles. Besides Theophrastus and Linnaeus, many others were interested in orchids principally as medicinal plants, and this is proven by references in the medical books and herbals of men such as Dioscorides (1<sup>st</sup> century CE), Otto Brunfels of Strasbourg (1488–1534), Leonhard Fuchs (1501–66), and John Gerard (1542–1612). In China, 2500 years ago, Confucius commended orchids for their wondrous beauty and scent, and the first book on the cultivation of orchids, giving descriptions of species and varieties, was probably written in Chinese in around the year 1000 CE. As early as 200 BCE, the Chinese pharmacopoeia "The Sang Nung Pen Tsao Ching", mentions *Dendrobium* as a source of tonic, astringent, analgesic, and antiinflammatory substances. In Indian Vedic scriptures, there is a mention of the plants under the name *Vanda*. The word "Banda" is also used by the pro-Dravidian aborigines for epiphytes in the Chota Nagpur Plateau of India. The same name has been adapted as a generic name in one of the most beautiful groups of orchids. Many orchids play a significant role in traditional systems of medicine because they are rich in alkaloids, flavonoids, glycosides, and phytochemical contents. In India, the medicinal properties of orchids have been used since Vedic period. A proof, which indicates that orchids have made their presence felt in Vedic India, is the existence of

'Ashtawarga', which is a group of eight drugs in Ayurvedic system that is used for the preparation of tonics, such as 'Chyavanparas', which is wisely used till date successfully in India and consists of four orchid species, viz., *Malaxis muscifera*, *M. acuminata*, *Habenaria intermedia*, and *H. edgeworthii*. Orchids have a broad range of ethnobotanical applications. Ethnobotany is the study of how people of a particular culture and region make use of indigenous plants. Ethnobotanists explore how plants are used in food, shelter, medicine, clothing, hunting, and religious ceremonies. Ethnobotanists aim to document, describe, and explain complex relationships between cultures and (uses of) plants focusing, primarily, on how plants are used, managed, and perceived across human societies as food, medicine, in divination, cosmetics, dyeing, as textiles, construction, as tools, currency, clothing, literature, rituals, and social life. Orchids belong to monocotyledons group, series Microspermae, order Orchidales, and family Orchidaceae. The tropics of South America support the highest number of species ( $\pm 6400$ ), followed by Asia ( $\pm 4000$  species) and Africa ( $\pm 1500$  species). Orchids form 9% of the flora and are the largest family among higher plants in India. It is estimated that about 1600 species (140 genera) of orchids are found in India with the Himalayas as their main home and others scattered in the Eastern and the Western Ghats. Of these, Northeast India accounts for 876 species, the Northwest Himalayas possess 300 species, Maharashtra has 130 species, Andaman and Nicobar Islands has 70 species, and the Western Ghats account for 200 species. But there still exists a large section of our rural population, who unlike others, do not just recognize the orchids for their beauty but also appreciate them for their medicinal value. Orchids have already shown to be therapeutically successful in all cases of nervous irritability, hysteria, spasm, fits, and all derangements of the function of the brain such as madness and delirium. There are several orchid species, which are valued as febrifuge in treating malaria, and in clearing tapeworms and other intestinal parasites. They are also used in treating skin diseases such as boils, pimples, rashes, eruptions, and skin lesions either in the form of ointment or poultice. The roots, seeds, leaves, flowers, and stems are used in various ways for their curative powers. Many orchids play a significant role in traditional systems of medicine because they are rich in alkaloids, flavonoids, glycosides, and phytochemical contents. Orchids are still being evaluated in depth for its pharmacological properties, in spite of its conventional uses in various therapeutic cures in various parts of country. But it is sad

that necessary scientific studies on medicinal properties of orchids are still on the bottom line. The biological activity and chemical composition of orchid species are yet to be explored fully. Orchids, in general, are not subjected to detailed pharmacological studies. Linking of indigenous knowledge to modern research activities makes the rate of discovery of drugs much more effective. While certain orchids are valued for their horticultural appeal, certain species hold medicinal, commercial, or nutritional value in food, chemical, pharmaceutical, packaging, fragrance, and cosmetic industries. Many wild species of orchids have served as gene source for the development of modern day hybrid orchids in the world. However, it is unfortunate that many of these valuable taxa are depleted even before knowing their utility. Hence, efforts should be made in ensuring conservation of orchid species and utilizing them for sustainable development of the orchid industry. Also, there is a need to highlight the potential for research on orchid species based on their ethnobotanical uses.