



A Report on-Colour Variation in the flowers of *Vanda tessellata* (Roxb.) Hook. ex. G.Don—An Endangered Medicinal Orchid

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Abstract

The present research work report the colour variation in flowers of *Vanda tessellata*, an epiphytic orchid. It is found in warm and humid tropical forest. The original colour of its flowers is purplish. But in field survey around the forest of Madhya Pradesh it was found that in the same forest some plants were bearing light yellowish coloured flower with very light shaded lip, whereas some were found in its original purplish shade. Through observations it can be concluded that changes in environmental condition along with other parameters could be a cause for such variation in its colour.

Keywords: *Vanda tessellata*, Epiphytic, Environmental, Colour variation.

Introduction

Orchidaceae is one of the largest family of flowering plants, with blooms that are often colourful and fragrant. It has about 27,800 currently accepted species distributed in about 880 genera¹. Orchids are found in almost every region of the world except the arid and arctic. High humidity such as that found in the rainforest is important for the environment of orchids².

Among the various species of orchids, *Vanda tessellata* is one of the species which is found from the Indian subcontinent to Indochina: They are an epiphytic plant growing on the bark of other trees in intermediate zones^{3,4}. In Sri Lanka, a wide range of colour variations in *Vanda tessellata* were reported. It is an epiphytic orchid, with stem 30-60 cm in height, thick, scandent with branching aerial roots. Its leaves 15-20 cm thick, fleshy, long, linear, recurved and complicate. Flowers in 6-10 flowered racemes, reaching with the peduncle 15-25 cm long. Its sepals are yellow, tessellated with brown lines and with white margins and petals are yellow with brown lines and white margins, shorter than the sepals. Lip 16 mm long, bluish, with purple dots. Capsules are 7.5-9 cm long, narrowly clavate-elongated with acute ribs. Roots of *Vanda tessellata* are alexiteric and antipyretic, which is useful in dyspepsia, bronchitis, inflammations, piles and hiccup. Its roots are externally used in rheumatism and common disorders and diseases of the nervous system. It also provides a healing medicine for secondary syphilis and scorpion-sting. Juice of its leaves is taken in otitis and its paste is applied to reduce fever. The roots of *Vanda tessellata* possess an effective anti-inflammatory activity⁵. A novel aphrodisiac compound (2,7,7-trimethyl bicyclic heptane) has been found in this orchid in 2013⁶. Significant population declines have been attributed to changing environmental conditions, habitat loss and degradation through

industrialization in India, particularly in Madhya Pradesh⁷.

In the present research work, an attempt is made to report colour variations in the flowers of *Vanda tessellata* found in Madhya Pradesh.

Materials and Methods

The flowers of *Vanda tessellata* were collected from various areas of the forest around Madhya Pradesh. The plant collected was identified botanically and authenticated for further study.

Results and Discussion

Two colour shades of flower are observed in orchid *Vanda tessellata* collected from forest of Madhya Pradesh during year 2012 - 2015. Flowers of *Vanda tessellata* collected from the area that are exposed to bright sunlight were bearing light yellow coloured flower with light purplish coloured lip (variation in colour), similarly those collected from the warm humid area of the forest were bearing the flower with bright purplish coloured lip (natural colour). Expect change in flower colour shades no other morphological changes were observed. Colour variation and deforestation is shown in (Figure-1). The forest from where this orchid has been collected for study is undergoing rapid deforestation. Through regular monitoring and observation it could be concluded that factors responsible for colour variation in the flowers may be deforestation that resulted in temperature fluctuation.

Similar reports on colour changes in the flowers of *Vanda tessellata* were reported from different parts of the Indian continent as well as from abroad. In 2013 S. Mujaffar et.al. reported colour variation in *Vanda tessellata* flower collected

from East Nimar M.P. In 2004, Mishra reported 10-12 shades of flowers in odisha. In 1981 from Sri lanka, Jayaweera reported 50 shades of *Vanda tessellata*.

In the previous studies the reason of colour variation is not clearly reported neither the change in lip colour has been indicated. In present findings colour change is not only in petals but lip colour is also been changed. For such variations various parameters are responsible which need further investigations. In M.P. forest out of several parameters environmental

(temperature) fluctuation due to rapid urbanization might be one of the cause for such colour variation.

Conclusion

Through the observation it is concluded that deforestation along with various other parameters might be the reason that led to temperature fluctuation as a result flowers of *Vanda tessellata* is showing colour variation. For the exact cause further research work is still needed.



(A)



(B)



(C)

Figure-1

Colour variation in the flowers of *Vanda tessellata*. (A) Natural colour of *Vanda tessellata*; (B) Colour changes in *Vanda tessellata*. (C) Deforestation (rapid urbanization)

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