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Flowering behavior of *in vitro* propagated *Zeuxine flava*

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Zeuxine flava (Family Orchidaceae) is an important medicinal plant found in natural forests of Sri Lanka. Due to its variegated leaves this is named as jewel orchid. This species is categorized as threatened species in the 1999 list of threatened flora and fauna (red data book) published by IUCN. This becomes threatened mainly due to habitat destruction and over exploitation of the species. Other than the medicinal value this species has a potential as an ornamental plant if sufficient quantities can be supplied. Therefore it is important to develop a mass propagation protocol for clonal propagation of this rare species.

In vitro plants were produced using apical meristems as explants. After 8 subculturing in the shoot initiation medium (1/10 strength woody plant basal medium + 2.25 mg/L BAP + 1.0 mg/L 2,4-D) elongated shoots able to produce root nodules. After root nodules were induced they were kept further 2 weeks under same condition for root elongation.

After acclimatization, *in vitro* plants were established using coconut husks as the potting mixture for comparative studies with natural plants in green house condition. *In vitro* produced plants were healthy and observed a fast growth rate than natural plants collected from the field in green house condition. When grown under green house conditions texture and the colour of the leaves of the natural plants were not comparable with those grown under natural conditions but the leaves of the *in vitro* propagated plants were dark green in colour with prominent shinning silver line along the mid rib.

Under natural conditions *Zeuxine flava* produce flowers from December to March. However natural plants grown under green house condition did not flower at all. *In vitro* produced plants showed an unusual pattern of flowering and produced flower spikes during March – May which is off season for flowering under natural conditions. Number of flowers in a spike in natural plants are around 6 – 8, but only 3 – 4 flowers per spike was observed in flowers produced by *in vitro* produced plants. However there was no difference in floral morphology. Natural plants maintained under green house condition did not produce flowers and they were dried off at the end of flowering season but *in vitro* produced plants were not dried off after flowering season instead they produced multiple shoots. Artificial pollination was not successful for flowers produced in *in vitro* produced plants.

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