

# VEGETATIVE PROPAGATION AND DEVELOPING OF SPATHOGLOTTIS ORCHID VARIANTS AS A PIONEERING OF INCOME GENERATING UNIT IN BIOLOGY EDUCATION DEPARTMENT

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## ABSTRACT

The development of *S. plicata* orchids is needed both to preserve and to increase genetic diversity. This study discusses plant propagation and RAPD-based molecular characterization of *S. plicata* orchid plant variants obtained from the results of mutagenesis in vitro seeds by X-rays.

Variants of *S. plicata* orchids are propagated by split techniques. Variants decorated, from various sources, are based primarily on variations in the color of the flowers, both from seed reproduction and from mutagenesis. The research sample of 15 variant plants, consisting of groups of natural orchids (species) and mutant orchids. Molecular characterization for the detection of genetic variability (DNA) between variant plants was carried out by PCR RAPD using 8 primers. RAPD data is converted to binary data and processed with the GenAlex 6.1 program to get the genetic distance. Furthermore, with the NTSys ver.2 program, data is processed for clustering using the UPGMA method and a dendrogram of the Neighbor Joining (NJoin) model is created.

Variant orchid *S. plicata* that can be collected as many as 47 variants, 16 of which are orchid-style variants. Variant plants have been propagated to 141 plants. Based on the results of the RAPD analysis of 15 plant samples from both variant groups, DNA polymorphisms were found in both the wildtype and mutant orchid groups. The percentage of DNA polymorphism is greater in the mutant group which confirms the occurrence of mutations due to X-ray irradiation. The results of the main coordinate analysis based on genetic distance, variant groups of mutant orchids are already in different quadrants with the group orchid species. Based on the dendrogram, the group of mutant orchids are in different clusters. This confirms the occurrence of genetic changes (DNA) greater in the mutant variant group.

**Kata Kunci:** *Orchid species, plant propagation, characterization, diversity*