

Presentation format: Plenary presentation

### **The breeding of *Dendrobium* section *Spatulata* in East Java**

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Indonesia is the world's largest archipelago consisting of 5 main islands: Sumatra, Kalimantan, Java, Sulawesi, and Papua, totalling about 18,110 islands, with 6,000 of those being inhabited. Each part of the archipelago has a specific macro-climate which is suitable for specific kinds of flora and fauna. Most of the land area is covered by tropical rainforests at various altitudes, making Indonesia the habitat of many different types of orchid species, each with unique characteristics. Some of these forests have not been explored, which is why new species of orchids are still being discovered.

In nature, orchids provide enormous opportunities for breeding, and historical records show that breeding activities were initiated by Europeans who lived in Indonesia during the colonial period. The registration of the resulting hybrids began in Bandung, West Java in the 1930s. This was followed in East Java by breeders who were mainly located in the region of Great Malang. The breeders started as amateurs, experimenting with the self- and cross-pollination of orchid species to create primary hybrids.

In recent times, the breeding activities in East Java have pulled ahead of the other parts of Indonesia. Hundreds of new hybrids are reported every month, and some selected hybrids have been officially registered with the Royal Horticultural Society (RHS). Breeders with more experience have come to realise the value in developing their own breeding niches. Species of the genus *Dendrobium* have been popular candidates, particularly those of the section *Spatulata*. This is because the sources of breeding materials for *Dendrobium* section *Spatulata* are limitless, both from native and non-native origins. Amongst breeders, there is sufficient knowledge and experience to explore more breeding opportunities in this section. These breeding efforts are also supported by high market demand for novel *Spatulata* hybrids since hybrids of the *Phalaenanth*e section have reached saturation point.

There are several desired traits in *Dendrobium* sect. *Spatulata*, such as the length and erectness of the petals, the shape, colour and stripes of the labellum, the overall flower colour, inflorescence, and plant vigour. Some species and their offspring have been utilised to create new hybrids. The first important step in breeding quality hybrids is the careful selection of parental lines, especially the species. Cross-pollination within species (siblings) is commonly practised to produce parental plants with desired traits. Breeders also observe the progeny of each species in detail to gain a better understanding of their characteristics. For example, *Dendrobium violaceoflavens*, *Dendrobium taurinum*, *Dendrobium nindii*, along with their progenies, are used to increase the width of the labellum, while also influencing the colour. Meanwhile, *Dendrobium helix* and *Dendrobium gouldii* are mainly used to create new hybrids with darker colours and curly

petals.

Keywords: breeding, *Dendrobium*, *Spatulata*, species, progeny