APOC
14TH ASIA PACIFIC
ORCHID CONFERENCE
SINGAPORE 2023

Presentation format: Oral

The breeding of harlequin-type *Phalaenopsis*: a cytogenetic perspective

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Phalaenopsis is one of the most important potted plants and cut flowers in the floricultural market worldwide. To create new cultivars with novel traits, interspecific hybridisation between sections within the genus has been broadly used in breeding programmes. Among the novel cultivars, the well-known harlequin-type originated from a mutation of a spotted cultivar, *Phalaenopsis* Golden Peoker 'Brother', in micropropagation. Two mutated cultivars, *P.* Golden Peoker 'ES' and 'BL' were selected from the micropropagated plants that bloomed. The flowers had fused and deep maroon spots randomly distributed on sepals and petals. These two cultivars launched a whole new breeding style known as the harlequin-type. Here, we report the breeding history of harlequin-type and the cytogenetic information of representative harlequin-type cultivars used in breeding programmes. Our chromosomal composition data indicate introgression of different portions of chromosomes from the species of section *Polychilos* among harlequin-type cultivars. The cytogenetic data provide fundamental knowledge for the breeding of novel phalaenopsis orchids.

Keywords: chromosome, breeding, karyotype, harlequin-type, phalaenopsis, cultivar