Identification of Simple Sequence Repeats (SSR) loci in *Vanda* Mimi Palmer expressed sequence tag database as potential marker(s) suitable for screening fragrance-related vandaceous and non-vandaceous orchids

Wee-Nee W.[a], Si-Ning L.[a], Yong C.S.Y.[b], Parameswari N.[a], Rusea G.[b] and Janna O.A.[a,*]

[a]Department of Cell and Molecular Biology, Faculty of Biotechnology and Biomolecular Sciences, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.

[b]Department of Biology, Faculty of Science, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia.

Abstract

Vanda Mimi Palmer (VMP) was largely cultivated for its intoxicating fragrance, huge commercial value and potential. It is a hybrid produced by crossing *Vanda* Tan Chay Yan and *Vanda tessellate*. Since fragrance characteristics of vandaceous orchids could not be determined based on the vegetative parts when the flowers are absent, our study is targeting on producing markers to detect their fragrance characteristics without the inflorescence. In our previous study, 2132 ESTs were generated from the VMP floral cDNA library. A total of 2,195 primer pairs were designed based on the mined EST-SSRs and primer pairs with amplicon size ranging from 100bp to 400bp and SSRs with three to five repeats were selected. A total of hundred and fifty primer pairs were chosen for PCR optimization performed using genomic DNA of VMP. Only 39 primer pairs were successfully optimised showing single banding pattern on 7% polyacrylamide gel (PAGE) and sent for sequencing. Three amplicons (obtained using the three primer pairs designated as P106, P117 and P140) showed the presence of the expected SSR. The primers were tested on genomic DNA extracted from other fragrant vandaceous and non-vandaceous orchids, and successfully amplified identical target region as in VMP. The presence of highly conserved and similar EST-SSRs sequences might serve as evidence of structural conservation and relationships across orchid species. Hence, we suggest these three primer pairs can be utilized to detect other vandaceous and non-vandaceous orchids

Keywords: *Vanda* Mimi Palmer, fragrance, expressed sequence tag, vandaceous orchids.

*Corresponding author: janna@upm.edu.my