A PROTOCOL FOR RAPID *IN VITRO* MULTIPLICATION OF *Dendrobium* USING STEM DISC MERISTEMS

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Dendrobiums are the most commonly encountered orchids in the floriculture sector. The current propagation methods in micropropagation are unable to produce sufficient explants for *in vitro* multiplication of *Dendronium*. Therefore, this study attempts to introduce an *in-vitro* multiplication protocol for *Dendrobium* orchids from stem disc using transverse Thin Cell Layer (TCL) technique. The first experiment was conducted to find out a suitable sterilization method. Stem discs (2-2.5 cm) were sterilized using 10% Clorox for 10 minutes (T1), 10% Clorox for 20 minutes (T2), 20% Clorox for 10 minutes (T3) and 20% Clorox for 20 minutes (T4) and lowest contamination (45%) was observed in T4. Second experiment was conducted to find out a suitable medium and hormone combination for rapid multiplication. The explants were cultured in both Murashige and Skoog (MS) and Knudson C medium with three concentrations of 6-benzyl amino purine (BAP/ 1, 3, 5 mg/l) with and without 2 mg/l of Naphthalene acetic acid (NAA). Results revealed a significant ($p<0.05$) influence of different media and different hormone combinations on all parameters except influence by different media on number of roots. Shoot initiation started 3 weeks after culturing and the highest number of shoots was observed in MS medium (3.48) with 3 mg/l BAP only (4.83) and 5 mg/l BAP only (4.5). Highest mean number of leaves was observed in MS medium (11.05) with all treatments except the medium without hormone. While, highest average shoot length was observed in MS medium (1.01 cm) supplemented with 3 mg/l BAP only hormone treatment (1.59 cm). Highest number of roots was recorded in both MS and Knudson C media with 1 mg/l BAP + 2 mg/l NAA (7.83). It could be concluded that the best medium for all observed parameters was MS medium while, the best hormone treatment was 3 mg/l BAP only for number of leaves, number of shoots and average shoot length. However 1 mg/l BAP + 2 mg/l NAA was the best for root induction.

Keywords: 6-benzyl amino purine, *Dendrobium*, Naphthalene acetic acid, Thin cell layer