

In vitro induction and proliferation of protocorm-like bodies (PLBs) from leaf segments of *Phalaenopsis bellina* (Rchb.f.) Christenson

ABSTRACT

An in vitro culture procedure was established to induce protocorm-like bodies (PLBs) from leaf segments of the *Phalaenopsis bellina* (Rchb.f.) Christenson directly from epidermal cells without intervening callus on ½ strength modified Murashige and Skoog (MS) (in *Physiol Plant* 15:473–497, 1962) medium supplemented with 1-Naphthaleneacetic acid (NAA; 0, 0.1, 1 mg/l) and Thidiazuron (TDZ; 0, 0.1, 1, 3 mg/l). The best response was established at 3 mg/l TDZ which induced 78% of leaf segments to form a mean number of 14 PLBs per explant after 16 weeks of culture. No PLBs were found when leaf segments were cultured on ½ strength modified MS media supplemented with 0.1 and 1 mg/l NAA. The best induction percentage for auxin: cytokinin combination was at the combination of NAA and TDZ at 1.0 and 3.0 mg/l which gave 72% induction with 9 PLBs per explant. Semi-solid ½ strength MS and liquid Vacin and Went (VW) (in *Bot Gaz* 110:605–613, 1949) medium were used in order to find the highest survival and number of PLBs proliferation after 3 months in culture. Half strength MS showed an average of 9 PLBs in comparison with VW with an average of 5.3 PLBs per explants. Histological observations revealed that the regenerated PLBs were generally formed from the epidermal layers of the posterior regions of the leaf segments. Scanning electron micrograph of PLBs showed the origin of newly formed PLB from the peripheral region of leaf segments.

Keyword: Protocorm; Direct organogenesis; Monopodial orchid; Naphthaleneacetic acid; Thidiazuron