

ASSESSING THE EFFECT OF GROWTH HORMONES AND ORGANIC ADDITIVES ON MICRO PROPAGATION OF THREE CULTIVARS OF *Gerbera jamesonii*

W.M.P.S. Gunasekara¹, H.M.I. Herath² and P.A. Weerasinghe¹

¹Department of Plant Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura.

²Floriculture Research and Development Unit, National Botanic Gardens, Peradeniya.

In commercial floriculture, plant multiplication by micro propagation is beneficial to earn more profit. This study was carried out to select best media for higher rate of callus induction and shoot initiation for cvs. *Kilimanjaro*, *Duch de va* and *Caranbole* of *Gerbera jamesonii* in *in-vitro* conditions. Capitulum explants were cultured on MS medium supplemented with four concentrations of TDZ (0.0, 0.1, 0.5 and 0.75 mg l⁻¹) with two concentrations of IAA (0.0, 0.5 mg l⁻¹) and measured both percentages of callus and shoot initiation after 04 weeks. In second experiment, MS medium supplemented with three types of non-defined organic additives; Tomato juice, Coconut water and Orange juice (50 mg l⁻¹) alone or in combination of 0.5 mg l⁻¹ TDZ and IAA hormones were tested for callus and shoot initiation of cv. *Kilimajaro*. Optimum callus and shoot initiation was observed with treatment 0.5, 0.0 mg l⁻¹ TDZ, IAA and treatment 0.5, 0.5 mg l⁻¹ TDZ, IAA in all the cultivars. No callus and shoot initiation was observed in MS medium without TDZ. Only cv. *Kilimanjaro* responded to callus and shoot initiation in the same media. *Kilimanjaro* showed the best performance out of the three cultivars. No significant differences ($p < 0.05$) were found between the treatments that were supplemented with only hormones, hormones + orange juice and hormone + coconut water for callus and shoot induction (100%, 94.0% and 92%). However, hormone + tomato juice added media showed significantly poor ($p < 0.05$) callus and shoot induction (70% and 0%). Compared to MS medium supplemented with 0.5 mg l⁻¹ TDZ and IAA hormone combination, non-defined organic additives supplemented in MS medium showed lower rate of callus and shoot induction. No callus and shoot induction were observed in normal MS medium and MS media treated with three types of non-defined organic additives.

Key words: Coconut Water, *Gerbera Jamesonii*, IAA, Orange Juice, TDZ