Oral presentation: 121

Nutritional and hormonal effect of *Sargassum wightii* (a seaweed) extract on *in vitro* sub-culturing medium of Gerbera

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Seaweed extracts are considered as bio-stimulants in agriculture. However, in agriculture and horticulture industry, it has not been fully exploited and adapted in crop production systems. Hence, the present study was conducted to evaluate the bio-stimulatory and nutritional effects of *Sargassum wightii* extract on *in vitro* shoot multiplication of Gerbera. The experiment was carried out using Complete Randomized Design with 14 treatment combinations with six replicates. Full strength MS medium without any synthetic hormones or seaweed extract was used as the control and full strength MS medium supplemented with 3 ppm BAP was used as the standard. Nine combinations of seaweed extract (10%, 25% and 40%) concentrations and levels of nutrients (full MS, half MS and without MS) were used as treatments. Also, half MS and without MS nutrient media were used without any synthetic hormones or seaweed extract and with 3 ppm BAP as treatments. Existing *in vitro* shoots were used as explants for the multiplication. Data were recorded at the fourth and sixth week after establishment. The highest number of multiplied shoots and highest average shoot length were recorded in the full strength MS medium supplemented with 10% seaweed extract and it was significantly higher than that of the standard. Comparisons among the treatments depicted the hormonal and nutritional effects of the seaweed extract. Of all treatments, half strength media recorded similar or lesser number of shoots compared to full strength media. There were no multiplied shoots recorded in the medium without MS containing treatments. Increasing concentration of the seaweed extract recorded a decreasing trend of shoot multiplication. There was no significant difference in the number of shoots between the fourth and sixth weeks. Accordingly, 10% seaweed extract could serve as a substitute for synthetic plant growth regulators *in vitro* in shoot multiplication medium of Gerbera. Furthermore, the fourth week after establishment is the most economical stage to harvest multiplied shoots.

Keywords: BAP, Gerbera, MS medium, seaweed extract, shoot multiplication