

Utilization of agar-agar extracted from red seaweed as a gelling agent of tissue culture media

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Abstract

Agar comes from the gelatinous components of the cell walls of certain red algae species. *Gracilaria* species. See weeds are identified as a potential source for agar. The present experiment was conducted to assess the use of agar-agar extracted from seaweeds as a tissue culture media. *Glacilaria salicornia* and *Gracilaria verrucosa* were used in extracting agar, which was conducted at the IARAD division, NARA. The rest of the research was conducted at the Tissue Culture Laboratory, Department of Crop Science, Faculty of Agriculture, University of Ruhuna from mid April to October, 2011. The extracted agar was incorporated into the tissue culture media and tested through micro propagation of Anthurium and Orchids. Different agar concentrations (6, 8 and 10 g/L) were used for preparation of Orchid and Anthurium media. The commercial agar was served as the control. CRD factorial design was used with 7 treatments, which replicated 20 times. Covered area by callus was measured weekly for Orchid and number of new leaves, shoot growth were recoded at two weeks interval for Anthurium. Non contamination % was also measured. Compared to commercial agar, significantly high ($P \leq 0.05$) callus growth rate of Orchid (40 - 45 %) was recorded from extracted agar. However, no significant difference was observed for non contamination %. The cost for extracted agar (Rs. 4214.85/Kg) is significantly lower than that of the commercial agar (Rs. 30000.00/Kg), the cost of tissue cultured products can significantly be reduced with use of extracted agar. *Glacilaria verrucosa* and *Glacilaria salicornia* could thus be recommended as a viable substitute agent for commercial agar.

Keywords:- Red seaweed, agar, tissue culture, Orchid, Anthurium