

Miscellaneous notes

Multiple shoot regeneration in kokum and camboge. K Mary Mathew, Y S Rao, K M Kuruvilla, R Lakshmanan, Gilu Lizy George, K J Madhusoodanan & S N Potty, *Biotechnology Lab, ICRI, Spices Board, Kochi- 682 025, Kerala.*

Kokum (*Garcinia indica* Choisy) and camboge (*Garcinia gummi-gutta* (L.) Rob.), widely distributed in the Western Ghats remained neglected even though they are highly valued in South Indian cuisine and in traditional systems of medicine. Recently *Garcinia* has excited the scientific community for the indication that the fruit rind is the richest natural source of hydroxy citric acid, a potential anti obesity agent (Heymsfield *et al.* 1998; Muthulakshmi & Sarah 1999). The present paper deals with development of tissue culture protocols for multiplication of kokum and camboge.

Elite trees of camboge and kokum of approximately 20 years old were selected as source

plants. Shoot tip and nodal explants were excised from tender, actively growing shoots and were cultured on MS medium (Murashige & Skoog 1962) after agitation in Bavistin (0.2%) for 30 min. and then surface sterilization in mercuric chloride (0.1%) for 10 min. Seventy five percent of cultured nodal segments and shoot tips of both *G. gummi-gutta* and *G. indica* exhibited axillary shoot outgrowth as early as 7 days of culture initiation. However, severe fungal contamination, predominantly endophytic was observed within 15-20 days of inoculation in 95-100% of cultures, particularly in *G. gummi-gutta*. The fungi were identified to be primarily *Rhizoctonia* and *Fusarium* spp. Newly formed sprouts were excised from explants, before the spread of contamination, re-sterilized and cultured on fresh medium and 20-30% explants could be retrieved by this procedure.

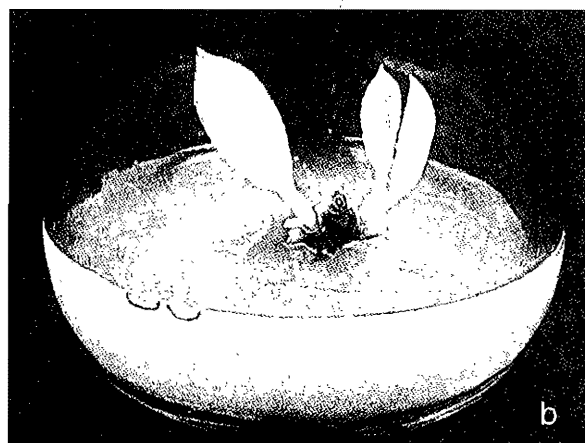


Fig. 1. Multiple shoot regeneration in *Garcinia* spp.

a. *G. indica* b. *G. gummi-gutta*

Preliminary observations revealed that multiple shoot proliferation in both camboge and kokum could be promoted by culturing on Murashige & Skoog (1962) medium at half strength salts with BAP at 1 mg l^{-1} , GA at 0.5 mg l^{-1} and NAA at 0.5 mg l^{-1} added with 0.5% activated charcoal. Best response of 2.1 ± 0.4 shoots explant⁻¹ was observed for camboge and 2.6 ± 0.5 for kokum. Though the leaves were healthy and unfurled within a few weeks of initial response, premature leaf fall was observed in all the cultures irrespective of various growth regulators used. However addition of activated charcoal in the media, promoted shoot growth and sustained leaf development. *G. indica* (Fig. 1a) showed better response in terms of number of multiple shoots than *G. gummi-gutta* (Fig. 1b). The present report on *Garcinia*, which is a first account, could be used

as a basis for further research on micropropagation of this tree spice.

Acknowledgement

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References

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