

Dynamics of Agricultural Biotechnology

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SAARC Agricultural Information Centre (SAIC)

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1322 VINCENT, KA; BEJOY, M; HARIHARAN, M; MATHEW, MK. 1991. **Plantlet regeneration from callus cultures of *Kaempferia galanga* L. - a medicinal plant.** *Ind. Journal of Plant Physiology*, 34: 4, 396-400.

GUM AND RESIN PLANTS

1323 ASOKAN, MP; SOBHANA, P; SUSHAMA-KUMARI, S; SETHURAJ, MR. 1988. **Tissue culture propagation of rubber (*Hevea brasiliensis* (Willd. ex ADR. de Juss.) Muell. Arg.) clone GT (Gondang Tapen).** 1. *Ind. J. of Nat. Rubber Res.*, 1: 2, 10-12.

An in vitro propagation method for this clone is outlined. The optimal growth regulator range for shoot and root development was 1.5-3.0 mg/litre IAA + 0.5-1.5 mg/litre kinetin. Rooted plantlets were successfully transplanted in the field.

1324 DHAR, AC; KISHOR, PBK; RAO, AM. 1989. **In vitro propagation of guayule (*Parthenium argentatum*) - a rubber yielding shrub.** *Plant Cell Reports*, 8: 8, 489-492; 9 ref.

Nodal explants (0.5 to 0.8 cm long) isolated from 2-year-old plants when cultured on MS medium supplemented with different concentrations of kinetin, BAP [benzyladenine], 2,4-D, 2,4-D + BAP, NAA and NAA + BAP produced callus tissues and shoots simultaneously at different frequencies. Shoots were regenerated at a high frequency (80-88%) from callus on MS medium containing NAA + BAP with or without glutamine. Addition of glutamine to these media improved considerably the number of shoots formed. Shoots could be regenerated from 200-day-old callus cultures at a very high frequency but the organogenetic capacity declined thereafter. Increases in the concentration of sucrose (up to 4%) significantly enhanced the shoot forming ability of callus, but higher concentrations (6%) suppressed it. Rooting was only induced in the dark when IAA, IBA and NAA were used, but 2,4-D could induce root formation in the light and dark.

1325 GUNATILLEKE, ID; SAMARANAYAKE, CHANDRA. 1988. **Shoot tip culture as a method of micropropagation of *Hevea*.** *Journal of the Rubber Research Institute of Sri Lanka*, 68, 33-44; 26 ref.

Shoot tips of *Hevea* from aseptically grown seedlings were established in culture on a liquid MS medium with half strength salts, supplemented with 0.5 mg BA + 0.005 mg IBA/litre or on a solid MS medium with full strength salts, both with and without 0.5 mg BA + 0.005 mg IBA/litre. BA was better for axillary bud proliferation and growth than the other cytokinins tested

(kinetin and 2iP). Proliferation of buds improved with successive subcultures. A multiplication rate of 30 + 2 shoots per explant was obtained with 3 subcultures in 165 days.

1326 SETIA, RC. 1984. **Traumatic gum duct formation in *Sterculia urens* Roxb. in response to injury.** *Phyton, Austria*, 24: 2, 253-255; 6 ref.

Gum ducts normally occur in the pith and cortex of young stems, but after mechanical injury to both young and old stems gum ducts were formed in the xylem within 30-40 min. These so-called traumatic ducts were formed as a result of breakdown of xylem cells. A traumatic duct shows an irregular lumen without any distinct epithelial cells. Gum produced in these cells was shown histochemically to be similar to that in normal ducts.

1327 SHAH, JJ. 1983. **Gum, resin and gum-resin secretion in plants.** *Acta Bot. Indica*, 11: 2, 91-96.

A brief review of Indian gum and resin plants, discussing familiar distribution, structure of secretory ducts, their development and mode of gum/resin secretion. Experiments showed that ethephon applied to the stem markedly increased gum/resin exudation on injury in mangoes, *Bombax ceiba*, *Sterculia urens*, *Anogeissus latifolia* and *Ailanthus excelsa*.

1328 VENKAIAH, K; SHAH, JJ. 1984. **Distribution, development and structure of gum ducts in *Lannea coromandelica* (Houtt.) Merril.** *Annals of Botany*, 54: 2, 175-186; 35 ref.

Gum ducts were present in leaves, stems and fruits and were most abundant in the bark of the stem of *L. coromandelica* [grandis]. They were absent in roots. Ducts developed schizogenously in the primary phloem, pith and xylem rays and lysigenously in the secondary phloem and phelloderm. Ducts were classified according to their position and arrangement as vertical, horizontal (radial and tangential) and irregular ducts. There was an integrated ramifying duct system in the bark of the trunk. Gum was formed in 2 stages. Secretion of gum occurred from the epithelial cells into the duct lumen and subsequently the disintegration of epithelial as well as neighbouring cells followed, i.e. gummosis occurred.

FRUIT CROPS

Apples

1329 BHARDWAJ, SV; KHOSLA, PK; THAKUR, PD; SHARMA, DR. 1994. **Detection of apple mosaic**