

Viability of excised embryos, shoot proliferation and *in-vitro* flowering in a species of rattan *Calamus thwaitesii* Becc.

By SHANTHA M. S. D. RAMANAYAKE

Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka

(e-mail: shantha@ifs.ac.lk)

SUMMARY

92% of embryos excised from fresh mature unripe fruits of *Calamus thwaitesii* germinated in a modified Y3 medium with 0.05 mg l^{-1} of 6-benzylaminopurine (BAP). This was higher than the 72% germination obtained with ripe seeds sown in soil. Stored seed lost viability within two weeks due to dehydration of embryos. Germination commenced with the differentiation of the haustorium and the cotyledonary sheath, observable in embryos germinating *in vitro*. This was followed by the development of the plumule. The first eophylls were simple and lanceolate. Decapitation of the *in-vitro* seedlings and transfer to a medium with higher levels of BAP at 5 or 8 mg l^{-1} resulted in the production of multiple shoots after 4–5 months, initially from buds that developed around the collar region. Repeated subculture resulted in the development of a clustering habit similar to that of field clumps with a rhizome, axillary shoots and dormant buds. Two axillary meristems were induced to develop precociously into inflorescences. Incorporation of activated charcoal and alpha-naphthaleneacetic acid (NAA) with 5 or 8 mg l^{-1} BAP reduced multiple shoot formation and brought about root development. Single shoots or clusters developed roots in a Y3 medium with reduced macro elements and supplemented with NAA (5 mg l^{-1}) and activated charcoal. Nursery establishment with 65% survival of plantlets was possible. *In-vitro* culture of excised embryos could be recommended, as propagules could be made available whenever desired by rooting proliferated shoots. It also allowed the safe transport of germplasm.