

**CULTURE OF LEAF TISSUES OF COCONUT:
DEVELOPMENTS TOWARDS SOMATIC EMBRYOGENESIS.**

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SUMMARY

An investigation to culture leaf tissues of coconut, Cocos nucifera L was conducted with the prime objective of developing a viable technique for clonal propagation. The cabbage or the bud was dissected out from field grown plants, sterilized and leaf tissues were excised under aseptic conditions.

The coconut leaf explants showed no signs of callusing/organogenesis/embryogenesis when cultured in palm tissue culture media developed by other workers. In the medium developed in this laboratory following the broad spectrum tissue culture experiment of de Fossard (1976), about 50% of the cultures produced globular bodies. The number of globules per explant varied from 5-20. They were creamy white, bipolar and resembled the immature zygotic embryo of coconut. They appeared to arise directly from the inner leaf tissue, probably the mesophyll and a few arose from the epidermal tissue. Callus formation never occurred in the cultured explants. Rarely, direct rhizogenesis occurred from the main vascular strands. Leaf tissues explanted from field grown seedlings produced globular bodies consistently but those derived from the bearing palms never exhibited embryogenesis/organogenesis. Even in seedlings, the tender leaves responded differently depending on their developmental maturity. Low concentrations of 2, 4-D and

activated charcoal were also found to be essential for the successful production of globular bodies on leaf explants.

Leaf tissues explanted from various colour forms of var typica and var nana and from plants derived from zygotic embryo cultures also produced globular structures. Those from "suckering palms" merely expanded in culture with no signs of embryogenesis.

Our attempts to achieve sustained growth and germination of the globular structures were unsuccessful. Sporadic germination of the globular bodies occurred in a few cultures but complete plant development was not possible. Adventive root formation and haustorium development were rather common. The globular structures when cultured in the medium formulated (in this laboratory) for germination of the immature zygotic embryos produced a creamy white, compact, fast growing callus. The callus was successfully subcultured.

Techniques were also developed for extracting potential internal factors from the cabbage of coconut and for isolating protoplasts from the coconut leaf.