EMBRYO CULTURE TECHNIQUE TO TACKLE COCONUT ROOT (WILT)

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EVER since Hannig (1904) demonstrated for the first time the possibility of culturing embryo outside the seed in artificial nutrient media, sterile culture of isolated plant tissues and embryos has become an efficient and versatile tool in solving several problems of practical and fundamental importance in the fields of plant physiology, breeding and genetics. Laibach (1929) demonstrated the possibility of using embryo culture techniques in genetic studies. By culturing embryos artificially he obtained normal seedlings from a hybrid whose fruits shed prematurely and whose seeds were abnormal. This definitely proved that the embryo was not inviable and defective and the failure of hybrid seed was due to inactivity of the endosperm or its incompatibility with the embryo. *In Vitro* culture of embryos is made use of to obtain seedlings of certain plants whose seeds normally require several years for germination. This technique has also been successfully utilised in shortening the breeding cycle of deciduous trees and increasing the germinability of hybrid embryos.

EMBRYO CULTURE IN COCONUT

The first report on embryo culture in coconut was that of Cutter and Wilson (1954) who grew embryos in various

media and observed increase in size and development of shoot and root. Abraham and Thomas (1962) could get leaf growth and rudimentary development of roots in their embryo culture studies which they did with the idea of finding out whether there was any hybrid vigour in Crosses. De Guzman and Del Rozario (1964) have succeeded in germinating 'Makapuno' embryos to seedlings with root development. The 'Makapuno' nuts are very much in demand in the Philippines because of their buttery kernel and they do not germinate in the normal course.

Embryo culture studies are in progress at this Research Station also with the idea of exploring the possibilities of culturing the suspected coconut wilt virus in embryos so that it would form a ready source of inoculum for the different isolates etc. and other related work. The embryos dissected out from the mature nuts of healthy as well as wilt diseased palms were aseptically cultured in a modified white's medium with coconut milk under laboratory conditions. Most of the embryos developed, even though growth was not found to be uniform. The maximum growth was seen in one embryo from a healthy palm which was 7 mm. in length at the time of culture (Fig. 1) and grew to 5 cm. in two months time (Fig. 2). After the development of three scale leaves, the first leaf is just emerging. But no root growth is evident. Systematic work on embryo culture in different media containing different hormones is in progress for inducing better growth and root development.

FIG. 1.

FIG. 2.

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