

IN - VITRO SCREENING FOR DROUGHT-TOLERANCE IN COCONUT

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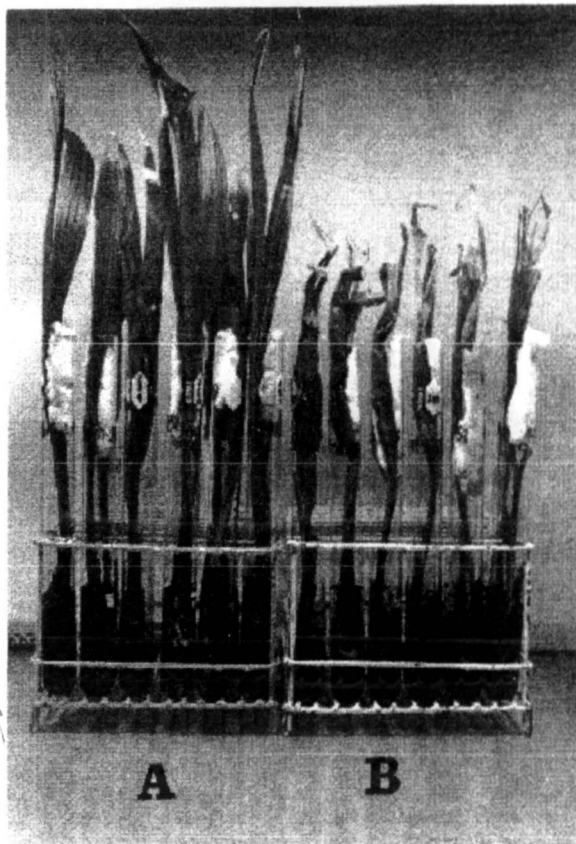
In Sri Lanka, large numbers of coconut palms are annually lost due to drought and this has severe economic consequences. Therefore breeding for drought-tolerant coconut germplasm is of prime importance. Selection of suitable parental material for breeding for drought tolerance using conventional methods is difficult due to the very long generation period and large size of the coconut palm. Therefore it is necessary to develop alternative methods to select drought tolerant germplasm.

An *in-vitro* screening procedure for drought tolerance has been developed in our laboratory and this method is based on embryo culture technology. In this method, embryos are excised from mature seednuts. After surface sterilization, the embryos are cultured in a pre-sterilized liquid growth medium in test tubes. This medium contains the necessary nutrients required for the germination and subsequent growth of embryos. The embryos are transferred to fresh media at four-weekly intervals. Once the embryos germinate and produce the first photosynthetic leaf, water stress or drought conditions are imposed by incorporating a drought simulating substance called polyethylene glycol (PEG) into the culture medium.

Polyethylene glycol is an inert substance that is highly soluble in water. It induces water stress in *in-vitro* grown plants by decreasing the available water of the nutrient medium without being taken up by the plant. These features make PEG an ideal sub-

stance to simulate water stress under *in-vitro* conditions.

At the beginning of screening, only a very low concentration of PEG (usually 1%) is incorporated into the culture medium. Then the concentration of PEG is progressively increased (at the rate of 1 % increase at four weekly-intervals) until the plants show severe symptoms of water stress, as judged by the



A. Control B. Induced drought symptoms

cessation of growth, yellowing of leaves etc.. Seedlings showing severe stress symptoms under high water stress conditions are rescued by passage through gradually decreasing levels of PEG. Finally, they are maintained in the normal growth medium until they recover

completely from water stress. These seedlings are then transferred to the soil for field planting in drought-prone areas. Once planted in the field, their performance is monitored regularly as it is very important to correlate results obtained under *in-vitro* conditions with those under field conditions.

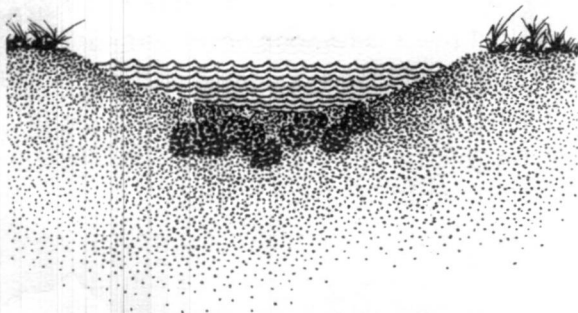
INDIGENOUS TECHNOLOGY FOR TERMITE CONTROL

Termite is a pest of coconut found in many coconut growing areas. They damage not only coconut seedlings but also roots of mature palms. An easy way to control the population of termites in coconut estates is the destruction of termite colonies. A termite hill is the aerial part of the colony and the underground part is the breeding ground with a queen living in it. A termite colony could not be destroyed just by removing the aerial parts without killing the queen found in underground parts.

A traditional method adopted by farmers to destroy termite colonies is highlighted in this note. At the onset of rainy season, the aerial part of the termite colony is removed leveling it to the ground.



Then make a basin like depression covering the entire area of the colony facilitating water to be collected during the rainy season. Due to the collection of water, an unfavourable environment will be created in the breeding part of the colony. As a result the queen and the entire breeding ground will be destroyed naturally. You may try this in your coconut lands.



By P A Henry Nimal Appuhamy