B-56: Establishment of callus and cell cultures of rice for studies on salinity tolerance

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As a result of research, many high yielding cultivars of rice (*Oryza sativa*) are available. Recently, more emphasis has been given to improving the cultivars for various stresses and diseases: tolerance to soil salinity has received prominence especially in Sri Lanka, due to the continuously rising soil salinity.

Cell and tissue culture techniques were used for studies on salinity tolerance. The preliminary study was on establishment of callus and cell cultures of *Oryza sativa*, cultivar AT-354 and BW-351, both of which were high yielding but had a comparatively high and low salinity tolerance respectively.

Plant parts such as, leaf blade, petiole, node, internode and grain (de-hulled) were tested for callus initiation and establishment. Two culture media tested were: Murashige and Skoog (1962), and Linsmaier and Skoog (LS) (1965). Both were supplemented with casein hydrolysate. (0.5 mg/l) and 2,4-D (1.5 mg/l) gelled with agar (0.8%). The cultures were kept in light (2,000-3,000 lx) and in complete dark, at 25°C.

Callus initiation was observed on leaf blade and grain on both culture compositions, in the dark. Growth and sub-culturing was achieved only with the grain callus. Leaf callus ceased to proliferate. Cell cultures were developed with the grain callus in LS medium with the same composition without agar. Cells at the division stage were observed with BAP (0.5 mg/1).

The study reveals the possibility of using callus from de-hulled grain for cell cultures which could be used for studies on salinity tolerance.