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In vitro micropropagation of horn plantain cv nethrampalam (AAB)

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Banana is the most widely consumed fruit in Sri Lanka, and is an attractive perennial fruit crop for small farmers. The cultivar 'Nethrampalam' is a member of the family Musaceae, which belongs to the genomic group AAB. 'Nethrampalam' has been popularized recently among the growers due to its demand but has not been widely spread due to the limited supply of quality planting material in sufficient quantities.

At present, even though there are established micropropagation protocols for many varieties of bananas including Embul, Embon, Rathambala etc. there is no such established micropropagation protocol for cultivar 'Nethrampalam'. However with a mass production, there is a greater potential to reduce the production cost and thereby cut down the prices of the fruits and suckers. On the other hand, when there is a mass production it is possible to export and also for value addition, i.e. banana chips.

The shoot tip of healthy sword suckers was used as the starting material. Initially the suckers were washed thoroughly to remove the adhered soil particles. The final size of the explant was about 2.0-3.0 cm in length and about 3.0 cm in diameter. Thereafter the shoot tips were surface disinfested with varying concentrations and durations exposed to chemicals such as ethanol (96% (v/v) commercial grade), Clorox™ (a commercial bleach, 5.25% (v/v), Sodium hypochlorite). After surface disinfestation, the shoot tips were inoculated onto Murashige & Skoog (MS) basic medium (1962) supplemented with benzyl amino purine (BAP) and indole acetic acid (IAA). After two sub culture stages, they were regenerated on MS medium supplemented with BAP (1.25 mg/L) and IAA (1.25 mg/L). Plants were successfully rooted on MS medium with indole butyric acid (IBA, 1.25 mg/L) and were acclimatized in the greenhouse.

The highest survival percentage (80%) was obtained when shoot tips were dipped in 30% (v/v) Clorox™ for 20 min and 10% (v/v) Clorox™ for 10 min. The culture medium supplemented with 5.00 mg/L of BAP and 2.50 mg/L of IAA, showed a better proliferation of inoculated shoot tips. The study showed that sub culturing enhances shoot multiplication and the histological analysis confirmed that the shoot tips have initiated proliferation.

During the study, a protocol for micropropagation of Horn plantain cultivar 'Nethrampalam' using shoot-tips was successfully developed with the quantification of *in vitro* multiplication. However, more research is needed to develop the technology for commercial scale application.

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