

**EFFECT OF SUGAR AND INCUBATION
TEMPERATURE ON MICROTUBER DEVELOPMENT
OF POTATO (*Solanum tuberosum* L)**



By

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ABSTRACT

Production of potato microtubers is used as a strategy for maintenance to minimize handling and subculture. Several protocols have been developed for potato microtuberization. An attempt was made in this study to determine the effect of sucrose and incubation temperature on microtuber production.

An experiment was conducted at Agricultural Research Station (ARS), Department of Agriculture (DOA), Sita Eliya, Nuwara Eliya, Sri Lanka during the period of May 15th to August 31st, 2006. Eight weeks old stock plantlets were treated with 40 ml of MS liquid medium supplemented with four different levels of sugar (80,100,120 and 140 g l⁻¹) and two different incubation temperatures (15±1 °C and 25±1 °C) in all possible combinations to promote microtuberization. Each treatment combination consisted of six replicates and the cultures were maintained at 15±1 °C and 25±1 °C incubation temperatures in bottle cooler and culture room respectively under 0/24 photoperiod (dark condition). Experiment was set in Completely Randomized Design.

In the treatment combination of 80 g l⁻¹ sugar level and 15±1 °C incubation temperature, highest number of microtubers per culture vessel was achieved. The treatment combination had not shown significant impact on the duration of microtuber initiation in 50% of the culture, fresh weight of microtuber, diameter of microtuber and number of eyes per microtuber. According to the results, the most suitable concentration of sugar for *in vitro* microtuberization at 15±1 °C incubation temperature was 80 g l⁻¹ among the tested treatments.

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