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***In Vitro* Propagation of Sugarcane (*Saccharum officinarum* L.) Variety C86-56 through Apical Meristem**

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ABSTRACT

Sugarcane (Saccharum officinarum L.) is monocotyledonous crop plant that mostly propagates through conventional methods. However, conventional propagation lacks rapid multiplication procedures to commercialize newly released varieties within a short period of time. Hence, the objective of this work was to optimize in vitro micropropagation protocol for sugarcane variety (C86-56) through apical meristem. The variety was cultured on MS medium supplemented with different concentrations of growth regulators on shoot initiation, multiplication, rooting and acclimatization stages. The results showed that significant difference in response to the various hormonal treatments with regard to the parameters measured. For initiation stage, the best performance was observed on MS medium supplemented 1.0 mg/l of BAP. On the other hand, multiplication stage was best on MS media enriched with 2.0 mg/l BAP + 1.0 mg/l NAA as manifested in terms of a mean number of shoots and mean shoot length. With regard to root induction, the best-rooting response in terms of mean root number and mean root length was achieved best on 1/2 MS media enriched with 2.0 mg/l NAA + 0.5 mg/l BAP. Survival rate during acclimatization was best on coco peat media at a rate of 98%.

Keywords: *acclimatization, apical meristem, explants, growth medium, in vitro*

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