

Effects of N-methyl-N-nitrosourea on seed germination of *Stevia rebaudiana*

ABSTRACT

Stevia rebaudiana is a unique plant that contains non-caloric natural sweetener and has gained much interest among Malaysians. In this study, the effect of different concentrations of N-methyl-N-nitrosourea (MNU) was assessed in inducing mutation in *Stevia* seeds to produce genetic variations, which is valuable for crop improvement. *Stevia* seeds were soaked in six concentrations of MNU (0.0, 0.13, 0.25, 0.38, 0.50, and 1.00 mM) for four different durations (15, 30, 45, and 60 min) at room temperature. As a result, application of MNU reduced the germination percentage and germination rate of *Stevia* seeds as compared to the control group. Prolonged exposure to the highest concentration of MNU recorded the lowest percentage of germination ($2.5 \pm 1.4\%$) and the lowest germination rate (0.21 ± 0.16). Tricots were observed among seedlings treated with 0.13, 0.38 and 1.0 mM of MNU for 30 min. Presence of seedlings with albino colour proved the mutagenic effect of MNU on *Stevia* genome. Based on the percentage of seedlings with chlorophyll mutation, the most effective and efficient mutagenic treatment to induce mutation was 60 min in 0.25 mM of MNU.

Keyword: Germination; MNU; Mutagenic effectiveness; Mutagenic efficiency; *Stevia rebaudiana*