

PRIMING ON EMBRYO EMERGENCE AND SEEDLING VIGOR OF SMALL FRUITED BITTER GOURD (*MOMORDICA CHARANTIA* L.) UNDER SUB-OPTIMAL TEMPERATURE

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ABSTRACT

An experiment was conducted to observe the effect of priming on seedling emergence and vigor under sub-optimum temperature. Six treatments namely: T₁- control (no soaking), T₂- tap water soaking for 24 hours, T₃- warm water soaking at 50°C for 60 minutes, T₄- 1% KNO₃ solution soaking at 25°C for 48 hours, T₅- 10 mgL⁻¹ sodium selenite soaking at 25°C for 48 hours, T₆- 400 mgL⁻¹ GA₃ solution soaking for 24 hours were imposed in the experiment. The results indicated that priming significantly improved seedling emergence at low temperature (20°C). Both emergence and speed of germination were increased in priming treatments especially in warm water treated seeds. Primed seeds at sub-optimum temperature enhanced emergence percentage at a faster rate. Thus, more than 90% of primed seeds emerged within 8 days against 14 days required for non-primed seeds. The enhanced germinability has been related to priming-induced quantitative change in biochemical content of the seeds and membrane integrity and to enhance physiological activities at seeds germination. However, cumulative emergence rate varied widely among the primed and non-primed seeds. The higher percent emergence and faster rate of emergence was obtained by treating seeds with GA₃ solution. Priming treatments improved percent emergence by 95, 93 and 89 % in both of GA₃ and warm water, KNO₃ and sodium selenite, respectively. It was found from the study that priming treatment significantly increased vigor index. The emergence index was significantly influenced by priming of seeds which varied from 33.60 to 12.14. Among the priming treatments, GA₃ produced more vigorous seedlings and the highest shoot length and shoot mass.

KEY WORDS: Bitter Gourd, Seed Priming, Seedling Vigor, Temperature