EFFECTS OF SEED PRIMING ON SEED GERMINATION, SEEDLING EMERGENCE AND VIGOUR OF SNAKE GOURD

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Seed priming is the most important method which improves the seed performance by providing faster and synchronized germination. Common seed priming techniques includ Hydro-priming, Halo-priming, Osmo-priming and Hormonal priming. This study was aimed to assess the effect of seed priming technique on germination, seedling emergence and vigour of snake gourd*(Trichosanthes cucumerina)*. The experiment was laid out in repeated test procedure, (SAS 9.0 software) with three replicates. Ten treatments including four priming techniques and two environment conditions were evaluated, at the Horticultural Crop Research and Development Institute (HORDI), Gannoruwa, Sri Lanka, during *Yala* 2017. The variety used for the study was MI-short. In the Hydro priming method seeds were soaked in 200ml of distilled water for 24, 36 and 48 hours. Seeds were soaked in 200ml of 0.2% NaCl for 18 hours in the Halo priming technique. For Hormonal priming method seeds were soaked in 20mg/200ml Gibberellin (commercially NAPGIPP-$GA_3$10%) solution for 18 hours. All the treatments were kept at room temperature in sealed flask under the dark condition. After surface washing with distilled water for 5 minutes each treated seed was dried up to original (14%) moisture percentage at room temperature for 48 hours in opened flask. Seeds without priming were used as the control. Primed seeds from each treatment were grouped into 2 parts and stored in refrigerator and ambient condition in sealed polythene bags prior to the germination test. Before commencing the experiment germination ability of seeds was tested by using sand method. Stored primed seed samples were tested for germination by sand method biweekly. There was a significant difference ($p>0.05$) between control and other treatments. Seed priming with 48 hours distilled water soaking and stored in refrigerator condition did not lose germination percentage than 68.8% and significantly increased the shoot length (10.78cm) and fresh weight (6.69g). Seed priming with 0.2% NaCl solution soaking and stored in ambient condition increased roots length (10.08cm), seed priming with 20mg GA_3/200ml distilled water soaking and stored in refrigerator condition increased dry weight (0.72g) of seedlings. Therefore, this study suggests that seed priming with 48 hours distilled water soaking and stored in refrigerator condition could be used to improve germination and seeding performance of snake gourd.

Keywords: Germination, Seed priming, Seedling vigour, Snake gourd, Soaking