

2.2 Plant material and seed source

The seeds were purchased from Agrovat and produced by Muktinath Krishi Company. The packet included following labellings:

- Variety name: Bhaktapur Local
- Moisture content: 6%
- Thousand-seed weight: 32 g

2.3 Seed priming treatments

Ten different types of treatments and concentrations were evaluated for an experiment. Control, Hot water, Gibberellic acid (GA_3), Potassium nitrate (KNO_3), Cow urine and Vermiwash were used with selective concentration (Table 1).

Table 1 Details of the treatments evaluated in the experiment

Treatments	Details
T ₁	Control (unsoaked)
T ₂	Hot water (45 °C for 5 minutes)
T ₃	GA_3 100 ppm
T ₄	GA_3 200 ppm
T ₅	KNO_3 1%
T ₆	KNO_3 3%
T ₇	Cow urine 5%
T ₈	Cow urine 10%
T ₉	Vermiwash 10%
T ₁₀	Vermiwash 20%

Note: GA_3 - gibberellic acid; KNO_3 - potassium nitrate; ppm- parts per million

2.4 Procedure of seed priming

Seeds were primed for 24 hours in priming solution of KNO_3 , GA_3 , Cow urine and Vermiwash. Similarly, hot water (45 °C) priming of seed was done for 5 minutes. Seeds were soaked in 100 mL priming solutions of the respective treatment solutions. Then the seeds were re-dried to near original moisture level at room temperature for 24 hrs. For control, seeds were not treated and it were used as in the original condition.

For priming with GA_3 , 1 g of GA_3 was taken in a test tube and 3 mL of 70% ethyl alcohol was added and it was shaken with low heat. The heated solution of the test tube was diluted with distilled water to make 1,000 ppm of 1 litre stock solution of GA_3 . Finally, it was diluted with distilled water to prepare 100 ppm and 200 ppm GA_3 solutions. For the preparation of KNO_3 1% solution, 1 g of KNO_3 was taken and diluted with distilled water to make 100 mL solution and 3 g of KNO_3 was taken and diluted with distilled water to make 100 mL solution of KNO_3 3%.

2.5 Experimental design and layout

The experiment was laid out in Completely Randomized Design (CRD) with ten treatments and three replications. "Each treatment consisted 50 seeds, with 3 replications, resulting in total sample size of 150 seeds per treatment." For seedling measurements, the 10 sample plants were randomly selected from each tray, and then tray mean were calculated. Subsequently, ANOVA were performed using the tray as an experimental unit (n=3).

2.6 Germination assessment

Among 50 seeds sown in each tray, the number of seed got emerged were only taken for an assessment considering 50 as a whole. Observation was done on daily basis in the morning time and data were recorded according to the data observed. Calculation of germination parameters are given below: