Seed Priming Techniques for Improving Germination in Selected Cucurbits

Yogarasa K.[*], Priyantha M.G.D.L.[1], Athukorala A.R.J.[2], Samaranayake J.W.K.[3], Beneragama C.K. and Rankoth L.M.
Department of Crop Science,
Faculty of Agriculture, University of Peradeniya, Peradeniya, Sri Lanka

Poor germination at final stage of seed certification leads to rejections in seeds produced as planting materials by the Department of Agriculture of Sri Lanka. Seed priming is one possible option to overcome such problem where a pre-sowing treatment is used for improving the germination. In Cucurbit crops, due to hard seed coat, germination is usually low. To identify the suitable priming methods for Cucurbitaceae, to evaluate the effects of various priming treatments and also to reduce the rejection rate in certified seeds, this experiment was conducted in Seed Certification Services Laboratory at Gannoruwa as a two factor factorial experiment in completely randomized design with three different priming treatments (hydro priming, osmo priming and halo priming) with control (non-primed) and two seed types (accepted and rejected) for two crops. bitter gourd (*Momordica charantia*) and snake gourd (*Trichosanthes cucumerina*) belonging to the family Cucurbitaceae. By this experiment, effects of priming treatments were investigated on parameters such as germination percentage, moisture percentage, electrical conductivity, seed microflora, shoot and root length (cm), seedling length (cm) seedling vigor index and chlorophyll fluorescence. According to the statistical analyses, there were no significant differences at level of $P<0.05$ for moisture percentage, shoot and root length and seedling length except for electrical conductivity, germination percentage and seedling vigor index. In accepted seeds of bitter gourd, osmo priming showed the greatest increase in germination whereas in rejected seeds, all three priming methods significantly increased seed germination compared to control. All priming treatments have increased the seedling quality in rejected snake gourd seeds compared to the control. According to the results, all three priming treatments have been able to improve the seed germination in rejected bitter gourd and snake gourd seeds.

Keywords: Bitter gourd, Halo priming, Hydro priming, Osmo priming, Snake gourd

The financial assistance received from the AHEAD/ELTA/ELSE Department Proposal to purchase the required laboratory and field equipment is greatly appreciated

[1]Seed Certification Service, Department of Agriculture, Gannoruwa, Sri Lanka
[2]Seed Health Testing Laboratory, Department of Agriculture, Gannoruwa, Sri Lanka
[3]Central Seed Testing Laboratory, Department of Agriculture, Gannoruwa. Sri Lanka
[*]ykirishala@gmail.com