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Priming mediated biotic stress tolerance in *Curcuma longa* L.

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Seed priming is an effective method to enhance germination and growth under stress conditions. The effects of different rhizome priming techniques namely Hydroprimin Halopriming and Chemical priming on the emergence, growth, and resistance in *Curcuma lon* L. were investigated in this study. In this study, the most effective reagents were used, toget with pre-optimized concentrations based on early studies. Three different turmeric varieti namely Prabha, Prathibha, and Pragati were primed and allowed to grow in grow bags along w the control rhizomes. Rhizomes were treated with 250Mm NaCl for 12 hours during haloprimi Rhizomes were hydro-primed for 12 hours using distilled water. Chemical priming involv treating the rhizome with different concentrations of potassium nitrate [50Mm, 100Mm, 150M 200Mm, 250Mm, 300Mm]. R hizome primed with 200Mm KNO3 showed the highest grov rate. They also showed the highest chlorophyll content. Moreover, the overall growth of pla is enhanced due to the seed-priming treatments. Proline concentration was significan higher in KNO3 primed plants and MDA content was higher in the halo primed varie Proline levels increase in the turmeric leaves in response to increased stress conditions a help in stress tolerance. Most halo and hydro-primed plants are disease-prone however, disease has been found in the KNO3 primed plants. As a result, chemical priming provides grea disease resistance than other primed plants. The present study suggested that chemical primi with potassium nitrate is an alternative and more effective method to increase tolerance turmeric varieties when exposed to different biotic stress conditions.

Keywords: Turmeric; Hydropriming, Halopriming, Chemical priming, growth parameters, Disease resistance