



RESEARCH PAPER

Customizing zinc oxide nanoparticles for extending seed vigour and viability in tomato (*Lycopersicon esculentum* Mill)

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Abstract : Tomato is one of the important vegetable crops being cultivated throughout India. Rapid deterioration of stored vegetable seeds is a serious problem which occurs at an increasing rate in uncontrolled storage environment. The present study was aimed at investigating the effects of zinc oxide nanoparticles (nano-ZnO) on tomato seeds during aging. The experimental treatments included four concentrations of nano sized ZnO (400, 600, 800, and 1000 mg/kg), and control (without any ZnO) on fresh and aged seeds. Results indicated that the highest and the lowest vigour index (1986 vs. 1521) were obtained in 600mg concentration of nano sized ZnO and control treatments, respectively in fresh seeds. During aging, vigour index was maintained significantly as 995 with 600mg nano sized ZnO treated seeds when compared with control (495). This study shows that employing ZnO nanoparticles could reduce tomato seed deterioration during aging and promote the seed germination.

Key Words : Nanosized nanoscale ZnO, Germination, Seed vigour, Tomato

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