

Effect of polyamines on seed germination of tomato under water stress

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Seed germination is one of the critical and sensitive stages of plant development, and the process is inhibited or even prevented depending on the intensity of water stress. Polyamines (PAs) are aliphatic amine growth regulators that play key roles in seed germination and plant resistance to drought stress. The diamine putrescine (Put), the triamine spermidine (Spd), and the tetramine spermine (Spm) are the most common free PAs in plants. The study was conducted to explore the benefits of seed priming with PAs on germination of tomato (*Solanum lycopersicum* L) variety “Thilina” seeds under water stress. Surface sterilized seeds were primed with 50 μ M of Put, Spd and Spm or with distilled water (control) for 24 hours. Primed seeds were then sown on filter papers soaked with water (control PEG-free), 0.5 and 1% polyethylene glycol-6000 (PEG-6000) solution to enforce water stress. Germination percentage, mean germination time and α -amylase activity of germinating seeds were assessed. After 04 days of sowing, percent of germination was reduced in 0.5% and 1% PEG in comparison to control (PEG-free). Percent germinations of control, Put, Spd and Spm-primed seeds were 43%, 53%, 62% and 63% respectively in 0.5% PEG and in 1% PEG the percent germinations were 37%, 52%, 60% and 62% respectively. Higher α -amylase activities in Spd and Spm-primed seeds were observed than that in control at 04 days of germination in 1% PEG. These results indicated that PA priming favoured tomato seed germination under water stress.

Key words: *Amylase, germination, polyamines, tomato, water stress*

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