

Effect of Melatonin on Seed Germination and Seedling Growth of *Catharanthus roseus* under Cadmium Stress

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Abstract : In this study, 200 μM Cd reduced relative seed germination, root elongation tolerance and seed germination tolerance index of *Catharanthus roseus*. The melatonin improved seed germination, germination velocity, seedling length and vigor index under Cd stress in a dose-dependent manner and the maximum biological responses obtained by 100 μM melatonin. However, 200-400 μM melatonin and 400 μM SNP had negative effects that evidenced as lower germination indices and poor establishment of seedlings. The cadmium suppressed amylase activity and contents of soluble and reducing sugars in germinating seeds, thereby reduced seed germination and subsequent seedling growth whereas increased electrolyte leakage. These Cd-induced inhibitory effects were ameliorated by melatonin.

Keywords : cadmium, *Catharanthus roseus*, melatonin, seed germination

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