



RESEARCH ARTICLE :

Determination of LD₅₀ for induced mutagenesis through Gamma and Ethyl Methanesulphonate in Periwinkle [*Catharanthus roseus* L.] cv. LOCAL

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SUMMARY : The present study was conducted during 2016-17 to determine the lethal dose (LD₅₀) of physical and chemical mutagens on periwinkle (*Catharanthus roseus* L.) cv. Local. The mutagens utilized for this study were physical mutagen *i.e.*, gamma radiation dose ranging from 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55 and 60 kR and chemical mutagen *i.e.*, chemical mutagen, Ethyl methanesulphonate (EMS) ranging from 10, 20, 30, 40, 50 and 60 mM. The germination percentage (94.00 %) and survival (20.00 %) for gamma and (65.00 %) and survival (35.00 %) for EMS was greatly influenced by mutagenic treatments, respectively. The mutagenic doses or concentrations are determined by the LD₅₀ value for the mutagens used. The results of probit analysis revealed that the seeds treated with gamma rays 40 kR and EMS 30 mM showed 50 per cent mortality over other mutagenic treatments. The other traits *viz.*, shoot length (4.1 cm) and root length (5.5 cm) for gamma and for EMS shoot length (3.8 cm) and root length (4.9 cm) ultimately exhibited a linear reduction with every increasing treatment doses.

KEY WORDS :

Mutagenesis, Gamma rays, Ethyl methane sulphonate, LD₅₀, Periwinkle

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