

Mutagenic Efficiency and Effectiveness of Gamma Ray and EMS alone and their Combination with Sensitivity of Two Traditional Varieties of Aromatic Rice (*Oryza Sativa* L.)

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Abstract—A dose dependent increased in biological damage was observed in most of the mutagenic treatment and maximum biological damaged was caused by 40 kR gamma rays + EMS (0.2%) followed by 30kR gamma rays+ EMS (0.2%) treatment, while minimum at 10kR gamma rays. Biological damage was relatively more in Badshahbhog as compared to genotype Kalanamak. A linear relationship was observed between doses of gamma ray and damage in different biological parameters, such as, plant survival at maturity, root and shoot growth, pollen fertility as well as grain yield. The mutagenic efficiency was found maximum at 0.2% EMS and the mutagenic effectiveness was found maximum at 10 kR gamma rays in both the varieties Kalanamak and Badshahbhog, respectively.

Keywords: Aromatic rice, gamma rays, EMS, mutagenic effectiveness and efficiency.