

**THE RESPONSE OF MORPHOLOGICAL CHARACTER ON LOCAL
DIY MARIGOLD (*Tagetes erecta* L.) ON COBALT 60 GAMMA RAY
IRRADIATION**

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ABSTRACT

Local DIY marigold plant varieties have the potential to be used as breeding materials because local varieties are a source of genetic diversity for the majority of plant diversity. The purpose of this study is to determine the response of the morphological character of local DIY marigold plants to gamma ray irradiation doses, the best gamma ray irradiation doses, and lethal dose 50. The research was a field experiment using Complete Randomized Block Design method with a single factor and three replicates. The treatment used was unirradiated marigold seeds and gamma ray irradiation at doses of 50-700 Gy. There are 45 experimental units and each experimental unit has 10 plants. The data obtained analyzed with Analysis of Variance (ANOVA) and further tests using Duncan's Multiple Range Test (DMRT). The result showed, some doses of gamma-ray irradiation cause differences in morphological character compared to controls. All gamma-ray irradiation dose treatments, did not show the best morphological character on all variables compared to controls. A gamma-ray irradiation dose of 340.97 Gy caused 50% mortality in the local DIY marigold population.

Keywords: *marigold, mutation, gamma irradiation*