Effect of Gamma Radiation on Callosobruchus maculatus (F.) (Coleoptera: Bruchidae) and Seed Germination

Abstract: The grain legumes are the second most important economic crops attacked by many of storage pests, one of these pests is Cowpea seed beetle (Callosobruchus maculatus). Gamma radiation appears to be a potential alternative to chemicals control in stored products. Therefore, this research aims to study the effect of gamma radiation (0.03, 0.06, 0.09, 0.12, 0.15, 0.18 and 0.21 (kGy) on eggs, larvae, pupae and seed germination. The results of this study showed that the irradiated eggs did not hatch. While the last larval stage was very sensitive to all doses of gamma rays, no adults emerged from larvae were exposed to 0.03 (kGy) or higher doses. In addition, the highest death percentages of pupae were 88% at 0.21(kGy). Finally, the results showed the same doses used in this study did not affect the rate of seed germination compared to control. This technique would help to improve using for other agriculture pests.

Keywords: Gamma Radiation, Callosobruchus maculates, larval stage, Coleoptera