

Title Inhibition of egg and larval development of the Indian meal moth *Plodia interpunctella* (Hübner) and almond moth *Ephesia cautella* (Walker) by gamma radiation in decorticated hazelnuts

Author B. Ozyardimci, N. Cetinkaya, E. Denli, E. Ic and M. Alabay

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Abstract

In this study, inhibition of egg hatching and development of immature stages of the Indian meal moth and almond moth by irradiation in hazelnuts was investigated. Irradiation doses required to inhibit the development of eggs of *Plodia interpunctella* and *Ephesia cautella* were 450 and 300 Gy, respectively, and no adults of either species emerged from treated samples (all stages) at 1 kGy of radiation in large-scale tests. The low-dose irradiation treatment did not cause excessive oxidative deterioration and no significant differences were found in organoleptic studies at 0.5–3 kGy in decorticated hazelnuts. However, total tocopherol content decreased depending on irradiation dose.