INTISARI

Lalat buah (*Bactrocera carambolae*) adalah salah satu hama penting komoditas buah-buahan tropis di Indonesia. Serangan lalat buah dapat menyebabkan kualitas dan kuantitas buah menurun. Tingginya tingkat kerugian karena serangan *B. carambolae* dapat diatasi dengan penerapan pengendalian hama yang efektif dan efisien yaitu dengan penerapan teknik serangga mandul (TSM). Tujuan penelitian ini dilakukan yaitu untuk menentukan dosis optimal iradiasi *B. carambolae* dan mengukur persaingan kawin antara *B. carambolae* jantan mandul dan jantan tidak mandul di laboratorium. Penelitian dilakukan dengan pembiakan *B. carambolae.* Pupa diiradiasi dengan iradiator cobalt-60 dengan dosis 0 Gy (kontrol), 40 Gy, 50 Gy, 60 Gy, 70 Gy, 80 Gy, 90 Gy, dan 100 Gy. Kemudian, dilakukan pengamatan terkait kualitas imago, persentase kemunculan imago, kemampuan terbang, persaingan kawin jantan iradiasi dengan jantan liar, dan penetasan telur. Hasil menunjukkan bahwa Dosis optimal iradiasi *B. carambolae* untuk kepentingan Badan Karantina adalah 90 Gy. Sementara itu, dosis optimal iradiasi *B. carambolae* untuk kepentingan Direktorat Perlindungan Tanaman adalah 80Gy. Keberhasilan kawin antara *B. carambolae* jantan mandul lebih rendah dibandingkan dengan jantan tidak mandul (liar) di laboratorium.

Kata kunci: *B. carambolae,* jantan mandul, dosis optimal, persaingan kawin

ABSTRACT

Fruit fly (*Bactrocera carambolae*) is one of the most important pests of tropical fruits in Indonesia. Fruit fly attacks can cause fruit quality and quantity to decline. The high level of losses due to *B. carambolae* attacks can be overcome by the application of effective and efficient pest control, namely by applying the sterile insect technique (SIT). The objectives of this study were to determine the optimal dose of irradiation of *B. carambolae* and measure mating competitivenes between sterile and non sterile males in the laboratory. The study was conducted by breeding *B. carambolae*. Pupae were irradiated with cobalt-60 irradiator at a dose of 0 Gy (control), 40 Gy, 50 Gy, 60 Gy, 70 Gy, 80 Gy, 90 Gy, and 100 Gy. Then, observations were made related to imago quality, percentage of imago emergence, flight ability, mating competitivenes between irradiated males and wild males, and egg hatching. The results showed that the optimal dose of irradiation of *B. carambolae* for the benefit of the Quarantine Agency is 90 Gy. Meanwhile, the optimal dose of irradiation of *B. carambolae* for the benefit of the Directorate of Plant Protection is 80Gy. Mating success between *B. carambolae* sterile males is lower than that of non sterile (wild) males in the laboratory.

Key words: *B. carambolae*, sterile males, optimal dose, mating competitivenes