

### Article title

## Toxicological and biochemical effects of some insecticides on Peach fly, *Bactrocera zonata* (Diptera: Tephritidae)

### Abstract

The peach fruit fly *Bactrocera zonata* (Saunders) (Diptera: Tephritidae), has been a serious pest in the last decade attacking a wide range of fruits in Egypt. The toxicity of Malathion, Diazinon, Methoxyfenzoide and Lufenuron to adult males and females of *B. zonata* was studied under laboratory conditions. The results showed that Diazinon was the most toxic among the tested compound followed by Malathion, Lufenuron and Methoxyfenozide.  $LC_{50}$  values for adults males and females were 0.20ppm, 0.09ppm and 0.02ppm (for male), 0.91, 0.14ppm and 0.01ppm (for females), respectively. The results showed that the level of glutamic oxalacetic transaminase (GOT) of treated adult males and females in 24h, 48h, and 72 hr. post treatment compared to untreated adults. The highest activities of GOT in treated adult males in 24h, 48h and 72h. were 92.11, 101.99 and 112.21  $\mu$ M pyruvate released  $\times 10^3$  / min/g FW (fresh weight), respectively, for Methoxyfenozide  $LC_{10}$  and in treated adult females after 24h, 48h and 72h. they were 84.24, 94.33 and 111.12  $\mu$ M, and 111.12  $\mu$ M pyruvate released  $\times 10^3$  / min/g FW, respectively, for Diazinon  $LC_{25}$ . The activities of acetylcholine esterase of treated adults decreased compared to untreated adults. The highest activities of acid phosphatase in adult males after 24 and 48h. were 249.43  $\mu$ g and 270.52  $\mu$ g AchI hydrolysed/min/g FW, respectively, for Methoxyfenozide  $LC_{25}$ . The highest activities of alkaline phosphatase in adult males were 139.04, 199.29  $\mu$ g phenol  $\times 10^3$  / min/g FW for Malathion  $LC_{10}$  and in adult females they were 123.31, 162.10 and 199.59  $\mu$ g phenol  $\times 10^3$  / min/g FW, respectively, for Lufenuron  $LC_{25}$  in 24h, 48h, and 72h post treatment.