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Foeniculum vulgre

Brassica nigra

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Calotropis procera

Musca domestica vicina

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TOXICOLOGICAL, BIOCHEMICAL AND HISTOPATHOLOGICAL STUDIES OF SOME BOTANICAL EXTRACTS ON *MUSCA DOMESTICA VICINA* (DIPTERA : MUSCIDAE)

Badriah Mohammed Khalid Assery

abstract

We study the effect of *Brassica nigra*, *Foeniculum vulgare* and *Calotropis procera* extracted with three different solvents (petroleum ether, acetone and diethyl ether) against *M. domestica* to evaluate their efficacy on larval mortality , pupation % , pupal duration, adult emergence % as well as , fecundity, fertility and adult longevity of insects resulted from treated larvae ,also to study the toxicological effects on adults. Moreover , to study their effect on some biochemical parameters and the histopathological effects on the larval mid gut and integument as well as gonads of treated adults.

Our results indicated that all of the used plant extracts were clearly affected the larval mortality and the larval duration was significantly affected by the treatments of the petroleum ether, acetone and diethyl ether extracts. The pupation percentage were greatly reduced in treated larvae with all extracts of *C. procera* (41.67,45.00,46.67)% for petroleum ether, acetone and diethyl ether extract respectively, followed by all extracts of *B. nigra* and the pupal duration was prolonged by all botanical extracts used in our investigation. Also, the results revealed the significant reduction in the adult emergence resulted from treated larvae and this reduction ranged between (55.00 and 68.33)% . and the adult longevity was decreased as a result of treatment with all botanical extracts used in our tests. It recorded (11.83 and 12.17)days for males and females resulted from larvae treated by petroleum ether extract of *C. procera* and *F. vulgare* respectively. It is clear that results showed significant decline in the fecundity and egg hatchability at all mating

crosses of *M. domestica* females resulted from treated 2nd larval instar .

The total glucose content, the total protein content and the total triglycerides content decreased significantly and the reduction reached to (- 14.97 , - 80.90 , - 48.83)% for these parameters respectively. Our results clearly indicated that there was a significant increase in both acid phosphatase activity and alkaline phosphatase activity as a result of treatment of 2nd larval instars.

Data indicated that the total glucose content increased significantly, the acetone extract of *B. nigra* is the most effective one, it record change in the total protein content reached to (- 68.18 %) .The total triglycerides content was increased in treated males. There was a significant decrease in acid phosphatase activity, it reached to (-26.30%) when males treated with diethyl ether extract of *F. vulgare*. On the other hand it reached to (-32.50%) when females treated with petroleum ether extract of *C. procera*. Also data indicated that alkaline phosphatase activity was significantly decrease when males treated with petroleum ether extract of *B. nigra* it reached to (- 44.63%).

The histopathological examination indicated that the tested extracts induced several histopathological symptoms in the treated larvae such as destruction in some muscle layers , disorganization in the epithelial cells , vacuolization and detachment of the basement membrane of the mid gut, destruction of the cuticle, degeneration of the epidermal cells and separation from each other and vacuolization was also observed. Degeneration in the epithelial sheath of testicular follicles, vacuolization and destruction in the different stages of spermatogenesis. Also, reduction in oocyte size, degeneration, distruction , vaculization of the follicular epithelium and nurse cells of the ovary was detected.