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Title

**Study on mechanism of resistance to
insecticide in *Brevicoryne brassicae***

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Abstract

Cabbage aphid *Brevicoryne brassicae*, is one of the key pest of canola in Iran and cause direct damage by sucking plant juices and indirect damage by transmission of plant viruses. in this study, susceptibility of this insect to insecticides consist of oxydemton-methyl, primicarb, chlorpyrifos-methyl, imidacloprid, trichlorofen, pymetrozine and thiamethoxam was examined by leaf deep assay method. LC₅₀ for imidacloprid 19.134, oxydemton-methyl 19.628, primicarb 28.08, thiamethoxam 58.255, chlorpyrifos-methyl 59.654, pymetrozine 76.800 and trichlorofen 95.964 ppm, was estimated. These results indicate that imidacloprid, oxydemton-methyl and primicarb have best effecicacy on cabbage aphid. gel electrophoresis for esterase enzyme has showed that this aphid has little esterase so that has shown high susceptibility to insecticides. results of biochemical experiment indicates that acethylcholinesterase has more susceptibility to oxydemton methyl and primicarb than chlorpyrifosmethyl and trichlorofen. So that these insecticides have more effect. I₅₀ for oxydemton-methyl, primicarb, chlorpyrifos-methyl and trichlorofen, respectively was 0.001, 0.00319, 62.614 and 84.310 μM. Results of bioassay (LC₅₀) and enzyme assay (I₅₀) shows resistance mechanism dose not depend on esterase and acethylcholinesterase in cabbage aphid.

Key words: *Brevicoryne brassicae*, susceptibility, esterase, acethylcholinesterase, resistance.