EFFECT OF INSECTICIDE SELECTION PRESSURE ON BIOLOGY OF GERMAN COCKROACHES (*BLATTELLA GERMANICA* L.).

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There is much evidence, that the fitness of resistant insects can differ in environments with or without an insecticide.

Several biological parameters [(developmental time (T), mortality (M) during larval development, fecundity (F), sex ratio, biotic potential (BP = lnFe/T,where Fe means number of adults insects from progeny/female)] were evaluated in two *B. germanica* strains, collected in the field and then reared for 1 year under laboratory coditions for adaptation. Both strains showed non-metabolic resistance to DDT (the resistance ratios RR>100). The resistance to permethrin (RRs varied between 7.4 and 27.7) was caused mostly by non-metabolic factors, but enhanced hydrolytic metabolism was also involved. Insects from every strain were divided: the first group was reared during 5 generations without insecticide treatment; insects from the second group were selected with permethrin applied topically in concentrations which caused 70–80% mortality in each generation. Comparisons of biological parameters were then made between selected and unselected insects from each strain.

After 5 generations the resistance to permethrin increased in selected groups of insects (the RR values varied between 12.8 and 34.3). The mortality in larval stages was higher (but not significant) in groups of the unselected insects (16.5–17.6%) in comparison to permethrin-treated (11.5–14.1%). Although the development time of females was shorter in untreated groups (83.0–79.5 days) in comparison to treated (82.0–87.0), the changes did not affect the biotic potential. The differences in fecundity between treated and untreated insects in tested resistance strains were also not significant.

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