

SOLANACEAE EXTRACTS AFFECT DEVELOPMENT AND REPRODUCTION OF SPODOPTERA EXIGUA MOTHS

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Specialized chemicals derived from different plants have been projected as weapons for pest control plan as they are shown to function as general toxicant, growth and reproductive inhibitors, repellents or oviposition-deterrents. They influence also physiological processes in insects. These compounds are mainly plants secondary metabolites, and some of them are already used as alternative to traditional chemical compounds currently applied as pesticides. Nowadays, numerous tests and bioassays are used to estimate biological activity or toxicity of different plant extracts. To evaluate the effects of Solanaceae extracts on *Spodoptera exigua* moths we developed several low cost and easy bioassays. They check for the effect of tested substances on all developmental stages: eggs, larvae, pupae and imagoes. Moreover, they let us to examine the lethal and sublethal effects. Several alterations, like reproductive, teratogenic, behavioural, physiological and developmental disturbances can be observed. The effects of extracts on various developmental insect stages were tested by adding the solution of tested substance to the nutrient (for larvae) or immersing the pupae into the plant extract solution. To test reproductive effects, pupae were placed in suitable chambers. After pupation, adult females laid eggs on extract-soaked substratum or the control one. The number of eggs and hatching success are determined and compared. To test ovicidal effects, pieces of paper with packets of eggs are immersed in a solution of the toxic chemical. Again, hatching success was checked. Then, teratogenicity is documented, inhibition-concentration curves, correlation factors and inhibition concentration values are determined. Our tests revealed, that Solanaceae extract may have possible ovicidal effect, at least in some range of concentrations. Moreover, females preferred extract-free substratum for egg-lying than the tested substratum. Also imagoes, which developed from extractexposed pupae, laid less eggs and their hatching success was decreased. In conclusion, our studies clearly indicate that the described bioassays can be used to evaluate the biological actions of plant extracts. Moreover, they can be useful in explanation of the toxic action of various substances and show the possible way of their application. Next, Solanaceae extracts and possibly alkaloids they contain, seem to be a promising agents, which can be used as agrochemical for plant protection.

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