

**THE EFFECT OF FENITROTHION ON *SPODOPTERA EXIGUA*
LARVAL TISSUES AND THE *IN VITRO* CELL LINE: UCR-SE-1**

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Organophosphorus insecticides are among the most frequently used xenobiotics. Despite their popularity, they are not ideal – they usually influence not only the target species but others too. They have many side effects, including carcinogenicity, genotoxicity or the induction of reproductive malfunctions and malformations. Insecticides act either in target (e.g. synapse) or non-target (e.g. fat body, germ cells) organs, systems and tissues.

The side effects of pesticides are not fully known or understood. Ultrastructural studies may throw light upon the processes of toxicity of insecticides, the dynamics of mortality caused by these pesticides, and the mechanisms of resistance developed in response to the toxic stress they induce.

We checked the effect of the one of the most frequently used organophosphorus insecticides, fenitrothion, on the larval tissues of *Spodoptera exigua*. We also decided to test the effect this xenobiotic had on cell lines. These two observations will allow us to draw conclusions about the toxicity and defence mechanisms involved. Preliminary observations showed that the most serious malformations are observed within the biological membranes and mitochondria. These malformations are present even before significant mortality is observed among the exposed insects. Transmission electron microscopy also reveals important changes within *in vitro* cell lines. The observed mitochondrial malformations, when compared with other researchers' reports, suggest that these insecticides may seriously disturb production of proteins. Based on these data, ultrastructural observations can be considered a useful tool for monitoring environmental pollution. They will be also helpful in planning precise strategies of pesticide use and in elaborating the mechanism of their toxicity.