

## **Developing an ontology to conceptualise resistance to insecticides**

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*FORTH-IMBB*

Following the introduction of synthetic organic insecticides in the 1940s, the first cases of resistance against them were detected shortly thereafter. With each subsequent new chemical introduced, insects soon developed resistance and consequently became increasingly difficult to control; this, in turn, has often led to more frequent applications of insecticides, leading to a heavy environmental load. Both intensity of resistance and frequency of insecticide-resistant individuals in wild populations still increase further and problems of control worsen as more chemicals are applied. Eventually, users switch to different pesticides, if available. With the advent of modern IT-utilizing strategies, modern approaches can now be improved based on previously collected and processed data. To contribute to the control of insect vectors of disease, we are trying to disseminate relevant knowledge and data using principled ontologies such that both become semantically interoperable and useful. We are therefore developing an application ontology for insecticide resistance based on well established reference ontologies such as CheBI and GO, and covering areas not covered earlier such as the mechanisms which confer resistance to a population and the methods used to detect resistance.