

Cell damage caused by the pesticide DDT is palliated

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Since it was first synthesized almost 150 years ago, the pesticide dichlorodiphenyltrichloroethane, better known as DDT, has been widely used to fight illnesses caused by insects. Later, it was proven not only to kill off the species it targeted, but also wreaked havoc on the environment, on human beings and on other species in the ecosystem.

In spite of banning its use in the 1970s, the prohibition was partially lifted in tropical countries to fight against serious [mosquito-borne diseases](#) such as malaria, [dengue fever](#) and Zika fever. The problem is that the pesticide is stored in fatty tissues and its presence is biomagnified throughout the food chain, meaning that when we eat certain foods from these countries, the risk of exposure becomes a worldwide issue.

Part of DDT's toxicity is associated with its ability to generate [oxidative stress](#) in [cells](#). This pesticide generates [reactive oxygen species](#) that deregulate the cell's normal redox process, harming membranes and provoking a metabolic change similar to the one observed in cancer cells.

Now, researchers at the University of Cordoba's Department of Biochemistry and Molecular Biology have been able to partially repair cell damage caused by DDT in mice. Noelia Morales and Nieves Abril, the two authors of the study, point out that the mice were given a selenium-enriched diet containing a similar amount to that of any vitamin supplement sold in drug stores.

Selenium, according to the results of the research project, stimulates antioxidant defenses in cells and prevents an attack, as in oxidative stress, experienced when exposed to DDT. Despite the benefits produced by selenium, its effectiveness depends greatly upon the dosage, meaning a preliminary study would have to be done on each individual patient to determine the exact amount required. In addition, certain metabolic syndromes caused by DDT have not been repaired. For this reason, the research group is currently studying the protective and regenerative capacity of other compounds, such as juice from Pedro Jiménez grapes.

Nieves Abril says, "In today's world, we are exposed to certain pesticides, so the key is to find substances, probably phytoactives, that, via nutraceuticals, improve our [basal metabolic rate](#) so that we have a defense before the damage is done."

More information: Noelia Morales-Prieto et al, Dietary Se supplementation partially restores the REDOX proteomic map of *M. spretus* liver exposed to p,p'-DDE, *Food and Chemical Toxicology* (2018). [DOI: 10.1016/j.fct.2018.02.047](https://doi.org/10.1016/j.fct.2018.02.047)

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