

**ANALYTICAL TECHNIQUES TO INVESTIGATE CATERPILLARS WITH SUSPECTED PESTICIDE CONTAMINATION**

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According to the National Agency of Sanitary Vigilance (ANVISA), Brazil is one of the largest consumers of pesticides in the world. The exposure of pesticides can lead to a significant environmental impact in the native fauna of insects. In this study we investigated the morphology of caterpillars with suspected pesticide contamination. The larvae of *Lonomia obliqua* (Lepidoptera: Saturniidae) may provoke a human systemic envenoming, that causes a hemorrhagic syndrome due to a consumptive coagulopathy, after the contact with the bristles. Clinically, patients may present spontaneous bleeding, such as gengivorrhagia, disseminated bruising, and haematuria. Intracerebral hemorrhage and acute renal failure have been associated with severe envenoming, that can lead to death. To reverse such effects, a specific *L. obliqua* antivenom is currently produced by Instituto Butantan, immunizing horses with extracts obtained from caterpillar bristles. In 2013, *L. obliqua* caterpillars from Southern and Southeastern regions were analyzed in terms of morphological changes (mainly, size and color). Two samples of caterpillars from each region were prepared and classified as healthy [H] and unhealthy [NH], based on morphological alterations. Each sample was lyophilized, macerated and weighed, and submitted to different techniques: Neutron Activation Analysis (NAA), Energy Dispersive X-ray Fluorescence (EDXRF) and Gás Chromatograph associated to Mass Spectrometer (MSGC). The results showed some significant differences between healthy and unhealthy caterpillars highlighting the presence of inorganic elements Cl, Fe, P, Si and S and two types of pesticides (organochlorine and organophosphate) in the unhealthy samples. Considering that Cl and P are components of pesticides and they are present in high concentration in unhealthy caterpillars, we may infer that these substances may affect the morphological development of this species, such as shape and size of the body of caterpillars and the bristles, as well as the composition of the toxins extracted from the bristles for antivenom production.