

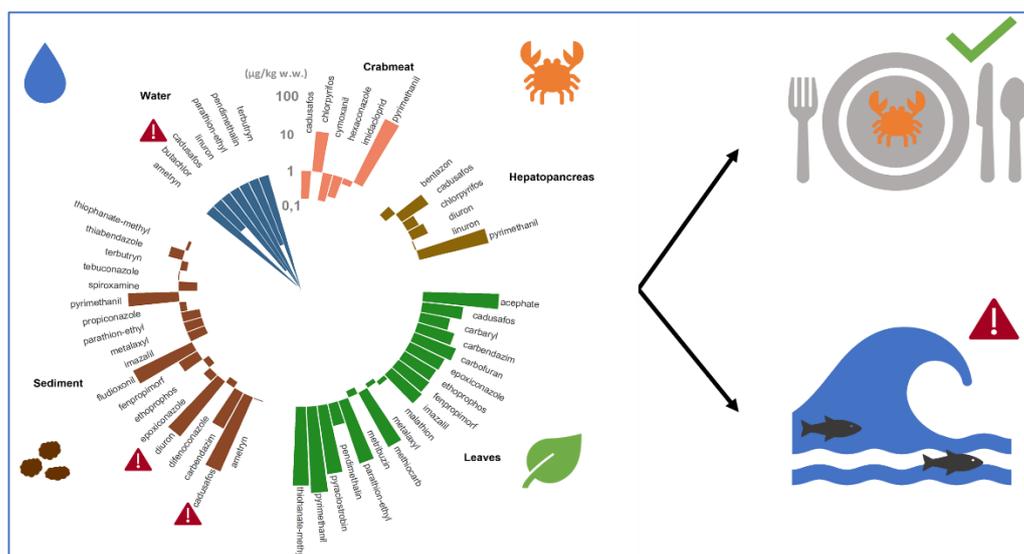
# FROM FIELD TO PLATE: AGRICULTURAL PESTICIDE PRESENCE IN THE GUAYAS ESTUARY (ECUADOR) AND COMMERCIAL MANGROVE CRABS

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Mangroves are unique coastal ecosystems, located in tropical and subtropical regions. Yet, the functioning of these essential ecosystems is threatened by the presence of pollutants, including pesticides originating from agricultural activities. We investigated pesticide residues in the Guayas estuarine environment, since agricultural activities rapidly increased in the Guayas river basin over the past decades. A multi-residue analysis involving a selection of 88 pesticides was performed on the white meat and the hepatopancreas of the red mangrove crab (*Ucides Occidentalis*) at 15 sampling sites within the Guayas estuary along with water, sediment, and leaves samples.

We found that 35 active compounds were present in the Guayas estuary, of which pyrimethanil was most detected and had the highest concentrations in almost all compartments. Also, cadusafos was present in all studied compartments of the Guayas mangrove system and several prohibited pesticides (including carbendazim, carbofuran, and parathion) were detected. An ecotoxicological and probabilistic consumer risk assessment pointed out that current butachlor, carbendazim, and fludioxonil concentrations can cause adverse effects in aquatic organisms in the long term. Moreover, high potential acute and chronic risks of cadusafos residues on aquatic invertebrates and of diuron on algae in the Guayas wetlands were observed. Still, the exposure results indicated that the health risk for the consumers of the commercial red mangrove crab is low concerning cadusafos, chlorpyrifos, diuron, linuron, and pyrimethanil residues in crab tissues. The findings presented in this research can provide a useful basis for local water managers and environmental conservation groups to act and reduce the usage of pesticides, to avoid threatening aquatic and human health.



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