BANNED PESTICIDES IN EUROPEAN UNION AND BRAZILIAN REALITY

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INTRODUCTION: Pesticides are substances used in crops and urban areas. It is known that these products are associated with several health and environmental problems. In this sense, European Union, aware of harmful effects that these molecules can cause, banned the use of several pesticides, in addition to having the maximum residue limit much lower than permitted in Brazil (0.1 μg L^{-1} for each pesticide and 0.5 μg L^{-1} for the sum). OBJECTIVE: To analyze found pesticides in Brazillian surveillance samples from 22 states, attending to Vigiagua Program, that are banned in European Union and differences in their maximum permitted limits, in 2024. MATERIALS AND METHODS: Drinking water samples from different Brazilian states were analyzed, being collected from several sources, including rivers, wells and public water supply, by State Health Surveillance Departments. The method employed solid phase extraction (SPE) followed by gas chromatography - triple quadrupole mass spectrometry (GC-MS/MS) to identify and quantify 99 pesticides. A water sample was considered positive if analytical response exceeded the method limit of detection (LOD), ranged from 0.003 to 0.018 μg L^{-1}. The study evaluated the frequency of positive samples. RESULTS AND CONCLUSION: Among the pesticides banned in the European Union, residues of 7 different analytes were found in Brazil, in 2024, including atrazine (16.2% positive samples), metolachlor (5.3%), picoxystrobin (1.9%), fipronil (1.3%), flutriafol (1.1%), lindane (gamma-HCH) (0.8%), epoxiconazole (0.8%). The analysis revealed the presence of seven pesticides banned in the European Union within Brazilian surface water samples, underscoring a significant public health concern. The detected pesticides demonstrate residues that are considered unsafe for standards recognized in Europe. These findings highlight the disparity between Brazil's pesticide regulations and those of the EU, where stricter maximum residue limits are enforced. The continued detection of harmful substances in drinking water raises urgent questions about the safety of water sources in Brazil and the potential health risks associated with long-term exposure to these chemicals. This study calls for enhanced regulatory measures, increased monitoring, and public health initiatives to address the presence of banned pesticides in the environment, aimed at protecting both human health and ecological systems.

Key words: Pesticides; drinking water; EU banned pesticides; health.

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