IMPACT OF CLIMATE CHANGES ON PESTICIDE LEVELS IN DRINKING WATER: THE FLOODING CASE IN THE STATE OF RIO GRANDE DO SUL.

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INTRODUCTION: Pesticides constitute a grave public health concern globally, in Latin America and in Brazil. The environmental exposure to these substances has been associated degenerative deceases. In this context, drinking water represents a critical matrix, where the presence of pesticides can compromise its safety. OBJECTIVE: Evaluate the potential impact of the Rio Grande do Sul (RS) floods on pesticide dynamics. MATERIALS AND METHODS: A comparative analysis of pesticide residues in drinking water was conducted before (March/24) and after (June/24) rainfall events in RS State, Brazil. Water samples (250 or 500 mL) were collected from various sources, including rivers, wells, and the public water supply, by the State Sanitary Surveillance, sent and analysed in the Tox Lab/CESTEH/ENSP/FIOCRUZ. The method, validated according to the INMETRO DOQ-CGCRE-008 norma, employed solid-phase extraction (SPE), followed by gas chromatography-triple quadrupole mass spectrometry (GC-MS/MS), to identify/quantify 99 pesticides. The sample was positive if its analytical response exceeded the limit of quantification (LOQ) for each analyte of the method, coupled with CG-MS/MS-identification criteria. The study evaluated the frequency of quantified samples, detected target analytes, concentrations, and sample source origin. RESULTS: From a total of 54 analysed samples (23 in March/24 and 31 in June/24), 11 (47,8%) were considered positive before the rainfall event, whereas 6 (19,4%) were positive afterwards, following the climate disaster. Atrazine, metolachlor and tebuconazole, were the pesticides that showed detections increased (ranging from 6.1 to 24.2%). Azoxystrobin exhibited decreased positivity frequencies, which ranged from 1.5% CONCLUSION: These findings suggest that the floods in RS interfered with the availability of pesticides in water for human consumption.

Key-words: Pesticides; drinking water, climate changes and floods.

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