

Área: ANA**Mini-QuEChERS approach for the extraction of pesticides from Bird's Blood**

Ana C. Paiz (IC),¹ Maria L. S. Trindade (IC),² Sthefanie L. do Valle (IC),² Luciana T. de Oliveira (PG),¹ Cecilia F. da Silva (IC),² Jean L. O. Arias (PQ), Mariana L. Gonçalves (PG), Leandro Bugoni (PQ), Sergiane C. Barbosa (PQ), Ednei G. Primel (PQ)*

paizanacarolina@gmail.com; eprimelfurg@gmail.com

¹Laboratório de Análise de Compostos Orgânicos e Metais – LACOM, Escola de Química e Alimentos - EQA, FURG;

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Highlights

Determination of pesticides in bird's blood is proposed; The method is fast and consumes low amounts of reagents;

Resumo/Abstract

Pesticides are defined as synthetic chemicals used to inhibit the action of organisms considered harmful to other living beings. Pesticides enter the environment mainly through agricultural practices, contaminating soil, water, air, and non-target organisms. Birds may be exposed through ingestion of contaminated food or water, leading to absorption into the bloodstream and distribution to tissues and organs. Blood serves as a useful matrix for monitoring pesticide occurrence; however, due to its complex composition, an efficient sample preparation technique is required. Therefore, the aim of this study was to propose the use of a miniaturized and simple sample preparation for the extraction of twenty-eight pesticides from blood samples with determination by LC-MS/MS [1]. Sample preparation was performed, using the conditions described by Alaoui et al. (2024) [2] with some modifications. Tests were performed using three levels of acidification for the extracting solvent (acetonitrile acidified with 0.1%, 1%, and 5% HCOOH). The recovery (R%), relative standard deviation (RSD), and matrix effect were evaluated according to the parameters established by the INMETRO validation guide [3]. The test performed with acetonitrile 5% HCOOH (500 µL) results in a greater number of compounds that met the acceptable values for R (%), RSD, and matrix effect. A cleaning step using C18 (25 mg) and magnesium sulfate (70 mg) was implemented. Analytical curves showed correlation coefficients greater than 0.99 for most compounds, with instrumental LOQs ranging from 0.0005 to 0.05 mg L⁻¹. The other validation parameters are in progress. The method under development significantly reduces solvent and sample consumption, aligning with the principles of green analytical chemistry. This study was conducted in accordance with the protocol approved by the Animal Use Ethics Committee (CEUA-FURG), authorization number Pq024/2024.

References:

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[2] ALAOUI, Abdallah et al. **Science of the total environment**, v. 948, p. 174671, 2024.
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