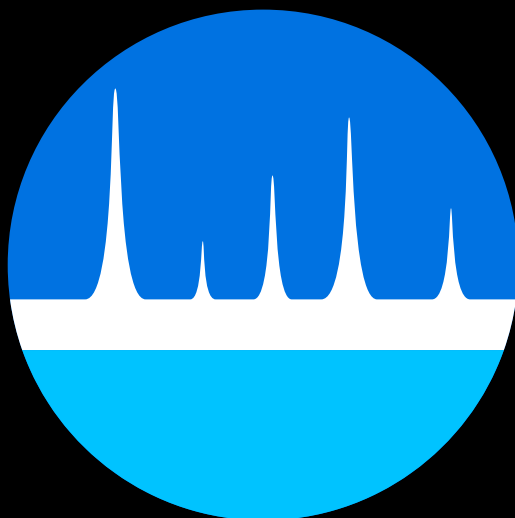


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# DETERMINATION OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS IN AQUATIC ENVIRONMENTS USING DPX AND HPLC-UV

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Nonsteroidal anti-inflammatory drugs (NSAIDs) including naproxen, flurbiprofen, diclofenac, ibuprofen, and paracetamol are widely used and frequently detected in aquatic environments due to their indiscriminate consumption, posing risks to both aquatic biota and public health. Even at low concentrations, these compounds can cause toxic and reproductive effects in aquatic organisms, highlighting the need for sensitive analytical methods for their detection. High-performance liquid chromatography coupled with ultraviolet detection (HPLC-UV) is commonly employed owing to its robustness and accessibility, although analytical efficiency largely depends on an appropriate sample preparation procedure. In this context, the dispersive pipette extraction (DPX) technique emerges as a sustainable and effective alternative. In this study, graphene oxide anchored to  $\beta$ -cyclodextrin was employed as the sorbent phase a hybrid material that combines high surface area with molecular selectivity, enabling more efficient extraction in accordance with the principles of green analytical chemistry. Structural and spectroscopic analyses confirmed the successful anchoring of  $\beta$ -cyclodextrin onto graphene oxide. Preliminary tests were conducted using different desorption solvents (MeOH, ketone, ACN, and ACN:MeOH 1:1 v/v), with the highest recovery for ibuprofen (109%) obtained using ACN. Subsequently, different desorption volumes (100, 200, and 300  $\mu$ L) were evaluated. The recoveries obtained for the target analytes were lower, and optimization of the experimental parameters is still in progress, aiming to establish a sustainable DPX-HPLC-UV procedure suitable for the multiresidue determination of NSAIDs in aqueous samples.

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