

## PD 045

### Comparison of different sample preparation methodologies for the determination of pesticides in fishes from Uruguay River

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Fishes feed and breath in the environment they live. The environmental health status of their habitat interrogates on their adaptability for human consumption and consequently, they are indicators of water pollution. The huge increase in the agricultural activities in South America has driven to a concomitant speed out in agrochemical consumption.

These agrochemicals reach the rivers through drift, run off, spills or other incidental events and they can bioaccumulate in fishes. Pesticide residue analysis of fish filet has been focused in the determination of old organochlorines, but little is known on the fate and distribution of modern compounds, not only insecticides but also fungicides and herbicides. Analytical protocols for filet fish analysis usually do not cover this kind of analytes.

In this study, the development of different sample treatments approaches for the analysis of 30 pesticide residues in fresh water fishes by LC-QqQ/MS is presented. The studied species with different eating habits were: *Lineatus prochilodus* (sábalo), *Leporinus obtusidens* (boga) and *Luciopimelodus pati* (pati). These matrices are considered complex, especially pati, due to its highest lipid content (4-15%). Two different approaches were followed; Method A involved the validation of the three species individually while Method B was validated using a composite sample.

Sample preparation consisted on different variations of QuEChERS method; the water addition during the extraction and the use of C18 in the dispersive clean-up step. In Method A, after water addition, the extract was cleaned-up directly with MgSO<sub>4</sub> and PSA. On the other hand, Method B did not add water but C18 was included as dispersive adsorbent. Both methods were validated according DG-SANTE guidelines.

For Method A, 90% of the compounds yielded recoveries between 70 and 120% for the three evaluated matrices, whereas 75% of the studied pesticides presented good results using Method B. In summary, Method A fits for the evaluation of pesticide residues in fresh water fishes for human consumption. However, Method B is suitable for environmental monitoring programs.