

# Passive Biomonitoring of La Brava lagoon (Argentina) using the fish *Oligosarcus jenynsii*

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## Introduction

La Brava lagoon is a site protected by the Agency for Sustainable Development (OPDS) in Argentina. Despite of this status it is surrounded by extensive agriculture, a source of pesticides that can negatively affect the health of the biota that inhabits the body of water.

The aim of this study was to evaluate the influence of agriculture by means of the effect of oxidative stress in *O. jenynsii*, a fish species representative of this ecosystem.

## Materials & Methods

Two samplings were carried out during one year; one in spring (2019), when the application of agrochemicals has just started, and another in summer (2020), during the maximum application of chemical compounds. Twenty fish and surface water samples (n=3) were taken in each sampling.

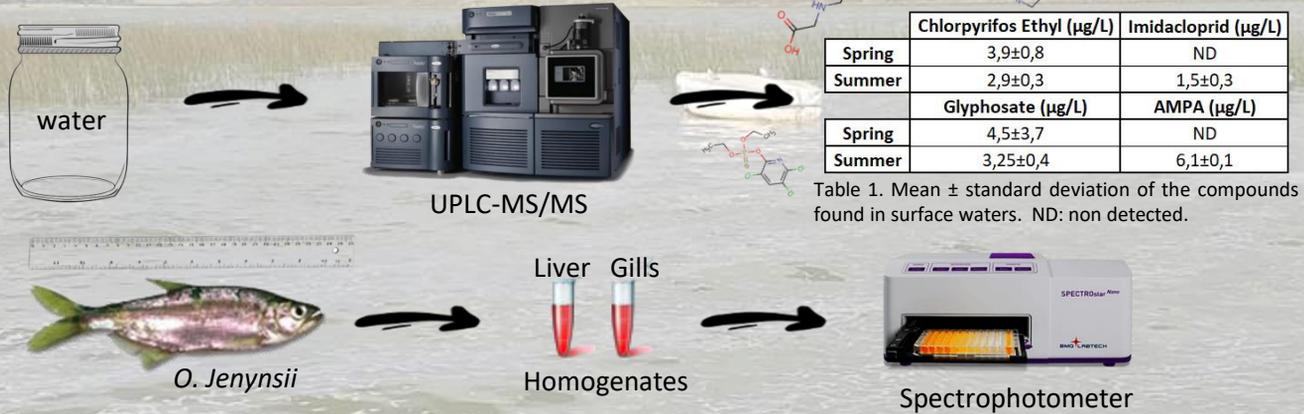


Table 1. Mean ± standard deviation of the compounds found in surface waters. ND: non detected.

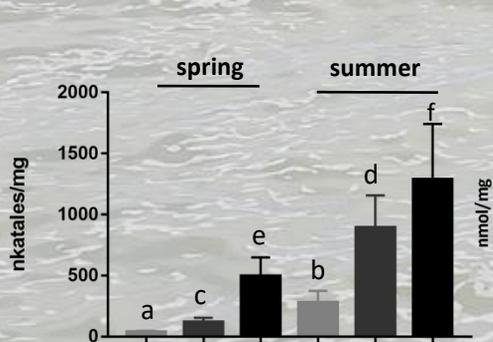


Figure 1. CAT and GST activity in Gills and Liver. CAT Gills (gray); CAT Liver (dark gray); and GST Liver (black). Different letter means significant difference (alpha 0.05). Only the same enzyme was compared in the same organ.

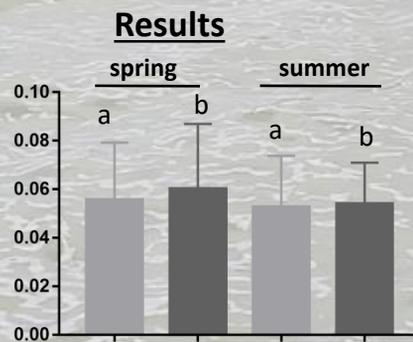


Figure 2. Malondialdehyde levels in Gills (gray) and Liver (dark gray). Different letter means significant difference (alpha 0.05). No comparison between organs.

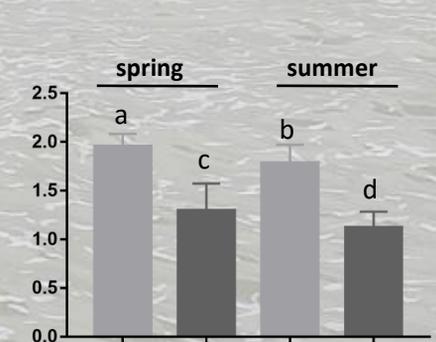


Figure 3. Condition factor k (gray) and Hepatosomatic index (dark gray) in *O. jenynsii*. Different letter means significant difference (alpha 0.05). No comparison between indices.

## Discussion & Conclusion

1. Biomarkers of oxidative stress in target organs showed the effects of some of the most used pesticides in the region.
2. The increase of antioxidant enzymes in summer has prevented oxidative damage.
3. The results for liver and gills were consistent, since liver is the main detoxifying organ and gills are the organ with the highest exposure to agrochemicals.

## Aknowledgements

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