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Morning Session

Flash Poster Session



Division of Fish Health and Pathology, University Institute of Animal Health and Food Safety (IUSA), University of Las Palmas de Gran Canaria, Spain



# Could ciguatoxins cause structural changes in fish tissue?

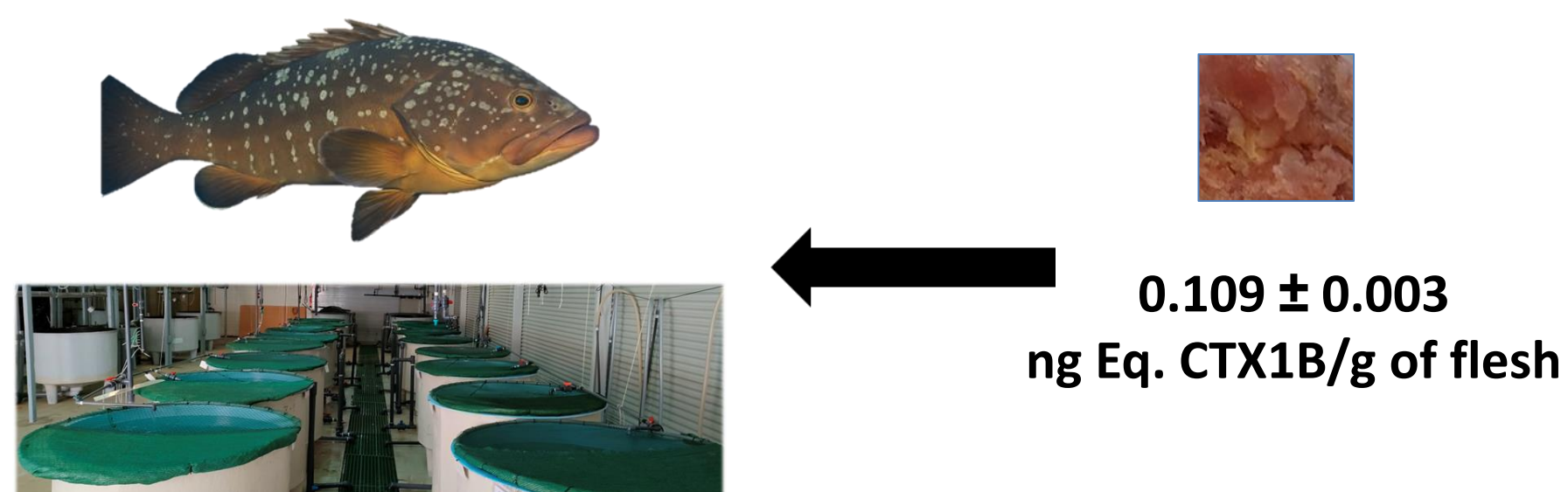
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## INTRODUCTION & AIM

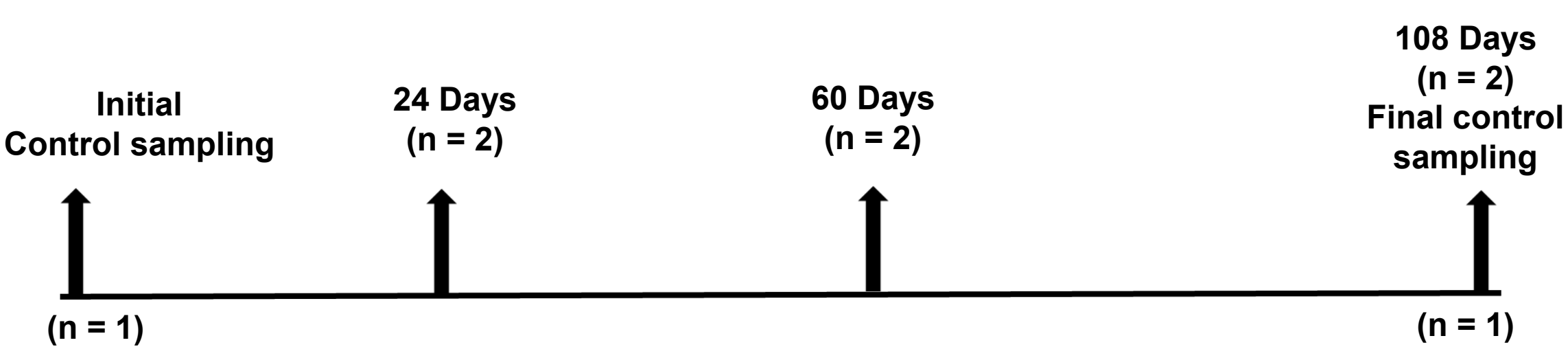
Ciguatera is a foodborne illness caused by ciguatoxins (CTXs), produced by dinoflagellates (*Gambierdiscus* and *Fukuyoa* genera), which bioaccumulate in fish through the food web, causing poisoning in humans. Currently, the physiological changes that these toxins can cause in adult fish involved in poisoning are poorly understood. The grouper (*Epinephelus marginatus*) is at the top of the food web and, in turn, within the CTX cycle in the Canary Islands, bioaccumulating them in its tissues. This study examines microscopic changes in tissues after a controlled dietary exposure to CTXs and analyzes how distinct accumulation dynamics influence the tissues of adult dusky groupers

## METHOD



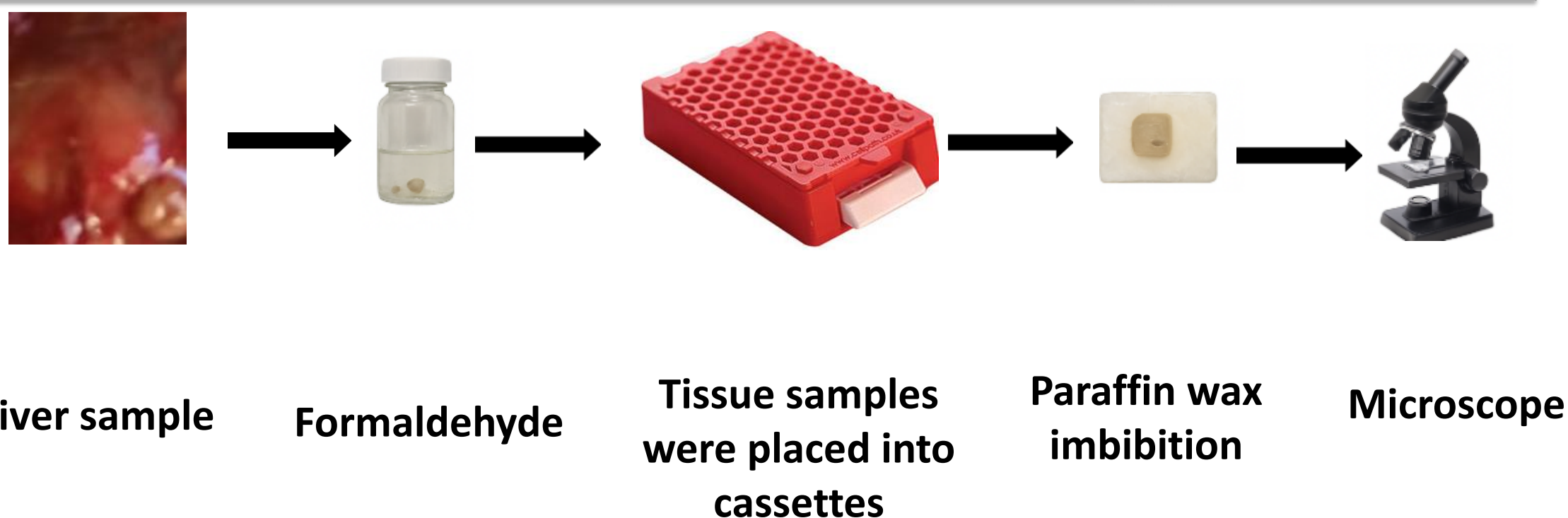
Captive-born dusky groupers were provided with experimental diet from amberjack and dusky grouper containing CTX-contaminated fish. The fish have never been exposed to CTX

## Experimental Model



CTXs levels were measured using a cell-based in flesh and liver (CBA)

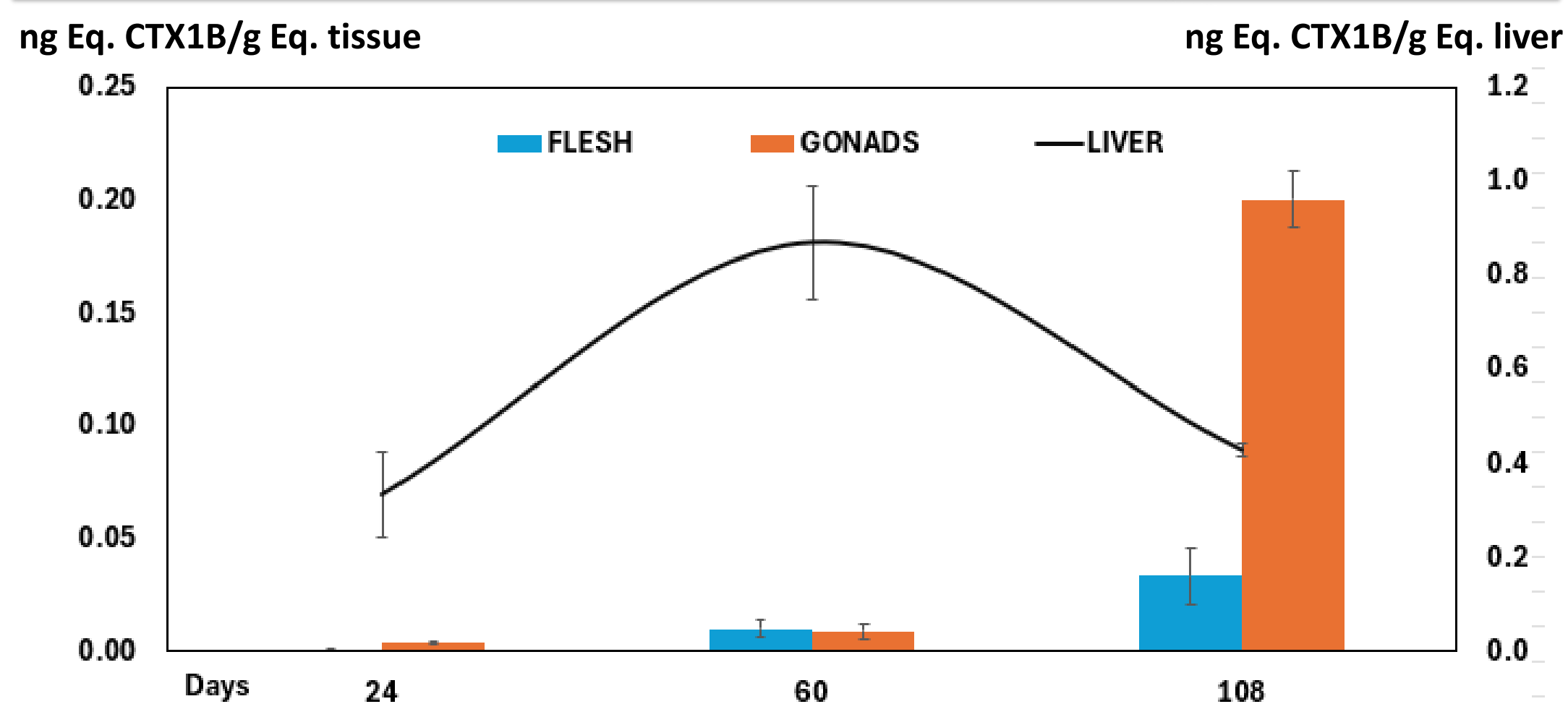
## Histopathology



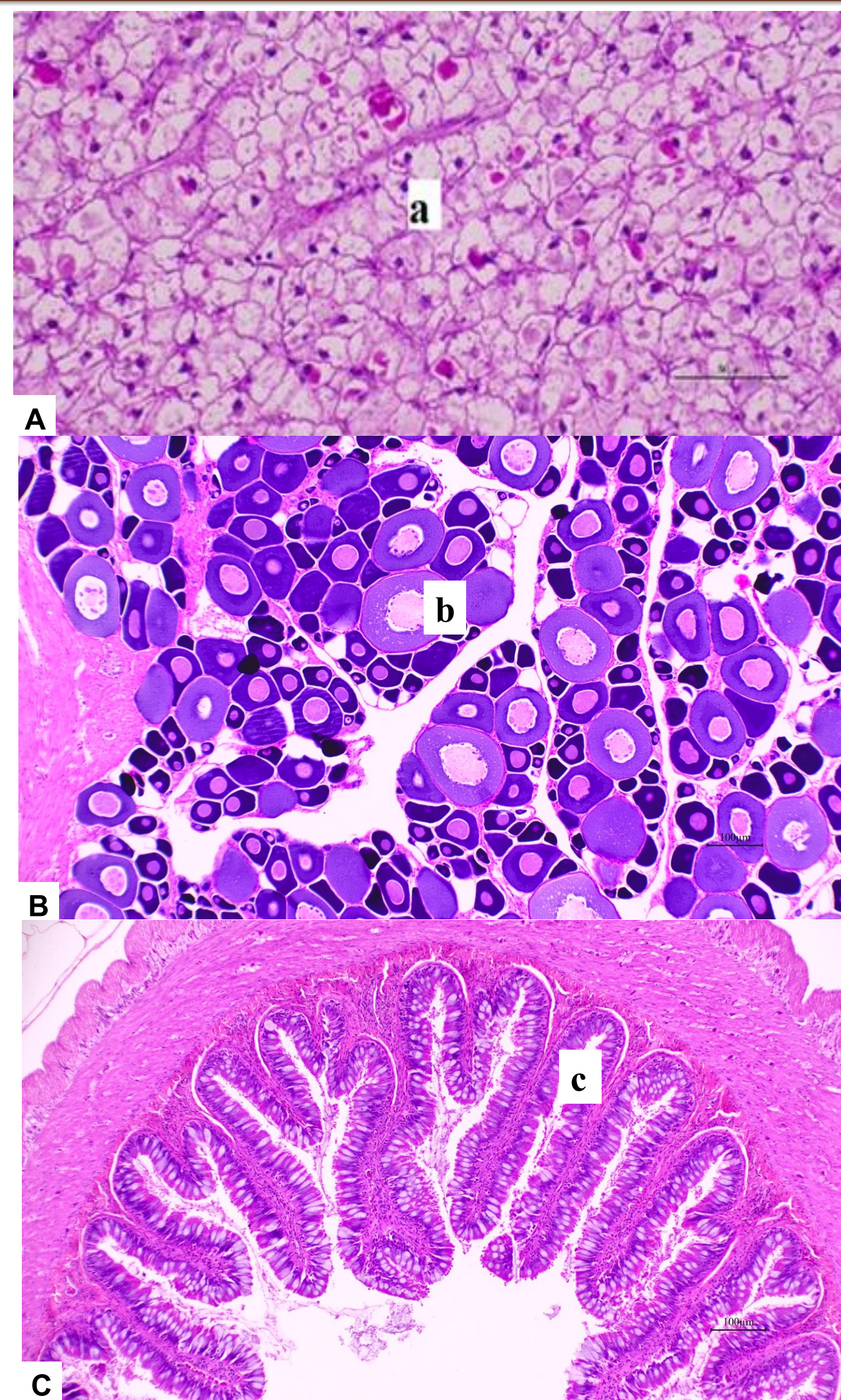
## References:

Darias-Dágfeel, Y., et al(2024). Effects on biochemical parameters and animal welfare of dusky grouper (*Epinephelus marginatus*, Lowe 1834) by feeding CTX toxic flesh. *Animals*, 14(12), 1757.

## RESULTS & DISCUSSION



The liver was significantly ( $p = 0.006$ ) more toxic than the gonad and muscle throughout the study period.  
No toxicity levels were detected from the control fish



(A). Voluminous hepatocytes with clear cytoplasm, stain (H/E).  
(B). Oocytes with clear cytoplasm and lipid content, stain (H/E).  
(C). Structure of intestinal villi with microvilli, stain (H/E).

We await confirmatory analyses of possible changes in the tissues of the experimental fish. It has been shown that the accumulation of ciguatoxin can cause metabolic changes and hepatotoxicity.

## Acknowledgments:

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