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# Comparative assessment of the toxicity of bisphenol A and its alternatives: an *in vitro* study

Brigite Marques<sup>1</sup>, Miguel Oliveira<sup>1,2</sup>, Carolina Frazão<sup>1,2</sup>, Isabel Lopes<sup>\*1,2</sup>

<sup>1</sup>Department of Biology, University of Aveiro, Aveiro, Portugal

<sup>2</sup>CESAM - Centre for Environmental and Marine Studies, Department of Biology, University of Aveiro, Aveiro, Portugal

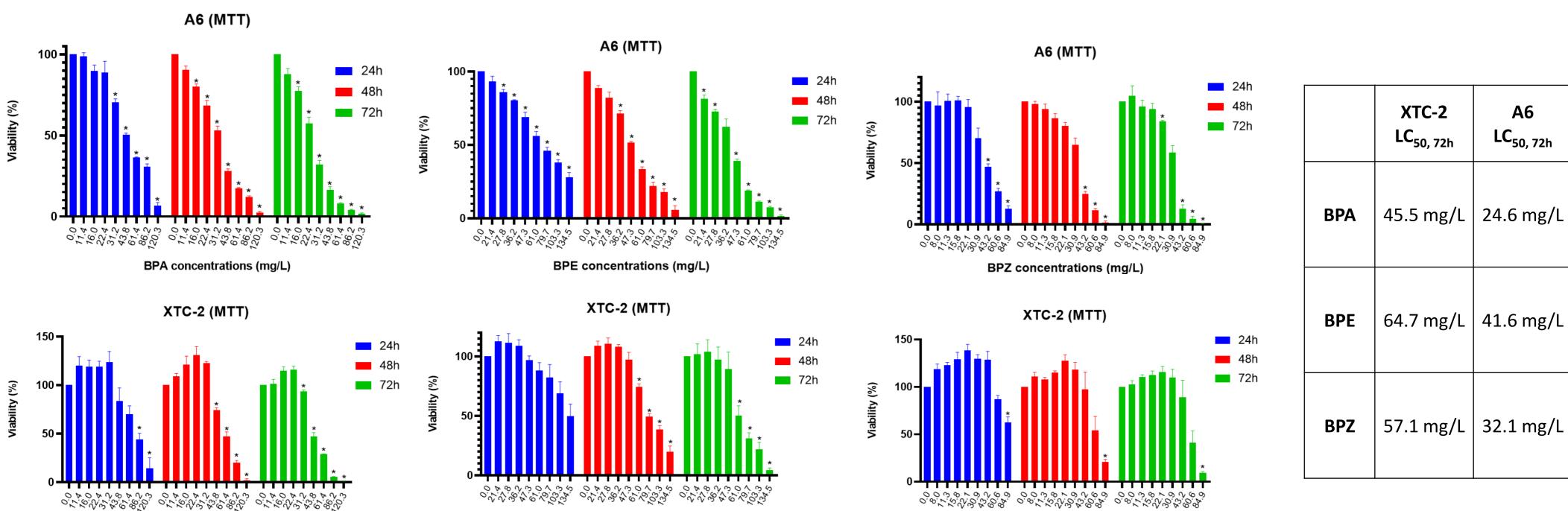
mail to: ilopes@ua.pt

# **INTRODUCTION & AIM**

- Bisphenol A (BPA) has been widely used as an additive in the plastic industry. Nowadays is known for being an endocrine disruptor causing diverse toxic
  effects on biota such as feminization, teratogenic effects, and deviations on the fitness and behavior of organisms.
- BPA is now being replaced by analogs, including bisphenol E (BPE) and bisphenol Z (BPZ), considered less environmental harmful and with similar functionality. These analogs are already being detected in the environment which raises ecological concerns.
- Amphibia is the class of vertebrates with the highest proportion of species threatened of extinction with one of the main causes being chemical contamination.

AIM: To make a comparative assessment of the cytotoxicity, for amphibian cell lines, of BPA and its analogues BPE and BPZ to assess their safety as alternatives to BPA.

#### **METHODS** Xenopus laevis **Absorbance:** Thiazolyl Blue Tetrazolium Exposure of A6 and XTC-2 cell 24, 48 and 72 Epithelial A6 cell line 570 nm and 690 nm Bromide (MTT) hours of exposure lines to BPA, BPE and BPZ derived from the as baseline (Riss et al., 2016) kidney of an adult male of *X. laevis* **BPA:** 11.4 – 120.3 mg/L **BPE:** 21.4 – 134.5 mg/L XTC-2 cell line derived from fibroblasts of a X. **BPZ:** 8 – 84.9 mg/L laevis tadpole RESULTS A6 (MTT)



BPE concentrations (mg/L)

### CONCLUSION

- Analyzing the values of LCs, the cytotoxicity can be ranked as BPA>BPZ>BPE for both cell lines. The A6 cell line revealed to be the most sensitive.
- This suggest that BPA alternatives appear to be less toxic.

**BPA Concentrations (mg/L)** 

# REFERENCES

BPZ concentrations (mg/L)

Riss, T. L., Moravec, R. A., & Niles, A. L. (2016). Cell Viability Assays. In The Assay Guidance Manual