



## ***Ucides cordatus* (LINNAEUS, 1763) (BRACHYURA, OCYPODIDAE): CYTOTOXICITY, GENOTOXICITY, AND THE IMPACTS ON THIS MANGROVE SENTINEL SPECIES AFTER AN ENVIRONMENTAL DISASTER IN CUBATÃO-SP/BRAZIL**

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Mangroves are noteworthy for their diversity and ecosystem services. The ‘uçá’-crab (*Ucides cordatus*), with its socioeconomic importance in the South Atlantic, is endemic to this ecosystem and acts as an indicator of its environmental quality and state of conservation. In 2015, a major environmental catastrophe that occurred at the *Ultracargo - Aratu S/A* Terminal (Cubatão-SP, Brazil) caused a seven-day fire that resulted in the release of numerous chemical pollutants, including those used to contain the fire. These contaminants were dispersed throughout the inner region of the Santos-São Vicente Estuarine System, requiring, therefore, an assessment of the quality of its mangroves in the post-disaster period. Biological indicators were used for the species (density, structure, and cytogenotoxicity), both pre- (2013) and post-disaster (2016). The mean size of animals in the post-disaster period ( $54.9 \pm 16.3$  mm CW) was smaller than in the pre-disaster period ( $60.5 \pm 14.4$  mm CW) ( $KW=7.42$ ,  $p=0.0065$ ). Cytotoxicity (NRRT) increased by 22.2% post-disaster ( $26.3 \pm 8.3$  min) when compared to the pre-disaster period ( $33.8 \pm 8.4$  min) ( $KW=6.96$ ,  $p=0.008$ ). However, genotoxicity did not differ significantly between the two periods (3 to 9 micronucleated cells/1,000;  $KW=2.86$ ,  $p=0.41$ ). PCA based on the previously cited variables explained 87.7% of the variance ( $p<0.01$ ) and indicated that the post-disaster group was more heterogeneous, reinforcing the environmental damages that occurred. The minor changes recorded for the biological indicators in the post-disaster period may be due to the higher resilience and biological flexibility of this species to environmental stress promoted by xenobiotics compared to other resident and more sensitive species (e.g., bivalves). Monitoring is recommended in order to assess the magnitude of the chronic environmental impacts of the accident, thus guiding environmental agencies in mitigating damage and quantifying possible future impacts.

**Keywords:** biomarkers, crab, environmental disaster, estuary, mangrove crab.

**Financial support:** FAPESP/FGB (‘Uçá’ Project # 2014/50438-5), CNPq (PQ # 305957/2019-8).

**Area:** Physiology & Toxicology

