

POSTER

THE ECHINOCHROME FROM *ARBACIA LIXULA*: CHARACTERIZATION AND BIOACTIVE EFFECTS ON ZEBRAFISH EMBRYOS

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Echinoderms have always been an important resource for fisheries and aquaculture. More recently, growing interest in the study of natural products and their potential pharmacological applications led researchers to consider them a valuable source of bioactive compounds. Many echinoderm species have been shown to possess endogenous compounds exerting a wide range of biological activities. Of particular interest are recent findings regarding the ability of certain sea urchin pigments to exert significant bioactivity. Echinochrome A, a polyhydroxylated naphthoquinone pigment, has gained interest due to its promising antioxidant properties and potential therapeutic applications. The present study aimed to evaluate the toxicological and antioxidant activity of echinochrome extracted from the sea urchin *Arbacia lixula* using zebrafish as experimental model. Zebrafish embryos were exposed to different concentrations of *A. lixula* echinochrome and monitored throughout larval development until the 5 days post-fertilization. For the toxicologi-

cal evaluation mortality and hatching rate, morphometric parameters, heart rate frequency, and behavioural alterations in larvae were analyzed. The antioxidant potential of echinochrome was investigated by experimentally inducing oxidative stress and evaluating the response by analysing the expression variations of SOD-1 through qRT-PCR, providing insights into the compound's role in modulating cellular defence mechanisms. *A. lixula* echinochrome act on zebrafish early development in a concentration-dependent effect, with higher doses showing increased mortality rates and occurrence of sub-lethal malformations. On the other hand, *A. lixula* echinochrome-treated embryos exhibited a modulation of SOD-1 expression under oxidative stress conditions, coherent with a protective antioxidant effect. Given the emerging importance of echinochrome's potential ecotoxicological and pharmacological applications, our basic characterization in the zebrafish model represents a crucial step to move forward.