

## **A Simple New Bioassay Based on Echinochrome Synthesis by Larval Sea Urchins**

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### **ABSTRACT**

A simple, rapid and quantitative embryo-larval bioassay that uses changes in echinochrome pigment synthesis as an indicator of seawater toxicity has been developed to allow increased use of sensitive sea urchin bioassays where time, resources and technical expertise may be limited. Several 48h embryo-larval tests were conducted with lowered salinity and increased concentrations of copper as the potential toxicants. At 48 h the larvae were examined for echinochrome pigment level (E), the number of embryos that had gastrulated (G) and the percentage of gastrulas that has developed to prisms (P). Relationships between the pigment levels (E) and morphological parameters (G and P) were investigated using simple and partial correlation analysis. Reductions in echinochrome levels were correlated with both G and P, and partial correlation analysis showed that changes in echinochrome levels are associated with G, P, or and P, depending on the experimental conditions. The echinochrome measurement procedure appears to be as good as or better than the morphological examination technique since it is as sensitive, less variable and takes about 25% of the time required for morphological examination.

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