

# 発生初期のバフンウニにおける銅ピリチオンの 急性毒性に関する研究

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## Abstract

The use and production of tributyltin have been restricted in Japan since 1997. As a result, copper pyrithione (CuPT) and zinc pyrithione (ZnPT) have been used in antifouling paints for large vessels as the alternatives, and their use has increased. In addition, it is generally accepted that ZnPT may transchelate to CuPT under the presence of copper ions contained in antifouling paints. CuPT is important as an antifouling compound, but there are few data regarding its toxicity to marine organisms. Therefore, to understand its toxicity, we carried out acute toxicity tests, in which Bafununi (*Hemicentrotus pulcherrimus*) was used as test species during its early developmental stages.

Development inhibition of Bafununi by CuPT or ZnPT was sorted for 4 types: 1) unfertilized, 2) normalformation coupled with developmental delay, 3) malformation without developmental delay and 4) malformation coupled with developmental delay. Then, EC<sub>20</sub>s of CuPT and ZnPT were determined.

Malformed individual organisms coupled with developmental delays increased under the influence of CuPT. 24-h and 48-h EC<sub>20</sub>s of CuPT were 0.0076 and 0.0043 mg/l, respectively. LOEC and NOEC of CuPT were estimated to be 0.0018 mg/l and 0.001 mg/l, respectively. Malformed individual organisms with or without developmental delays increased under the influence of ZnPT. 24-h EC<sub>20</sub> of ZnPT was 0.072 mg/l.

Based on these results, it seems that toxic functions of CuPT may be different from those of ZnPT to Bafununi during its early developmental stages.