

Biological Toxicity Assessment of Indium by using *umu*-test and Zebrafish embryo toxicity test

By 劉文堅

Advisor: 袁如馨

防災與水環境研究中心

Why Indium?

- * A major component in the processing of the high-tech industries in Taiwan
- * The processing of such industry generates tremendous amount of wastewater, creating concerns on environments and health.

Toxic assessment is necessary to understand the toxic potential of Indium

Biological Toxicity Tests

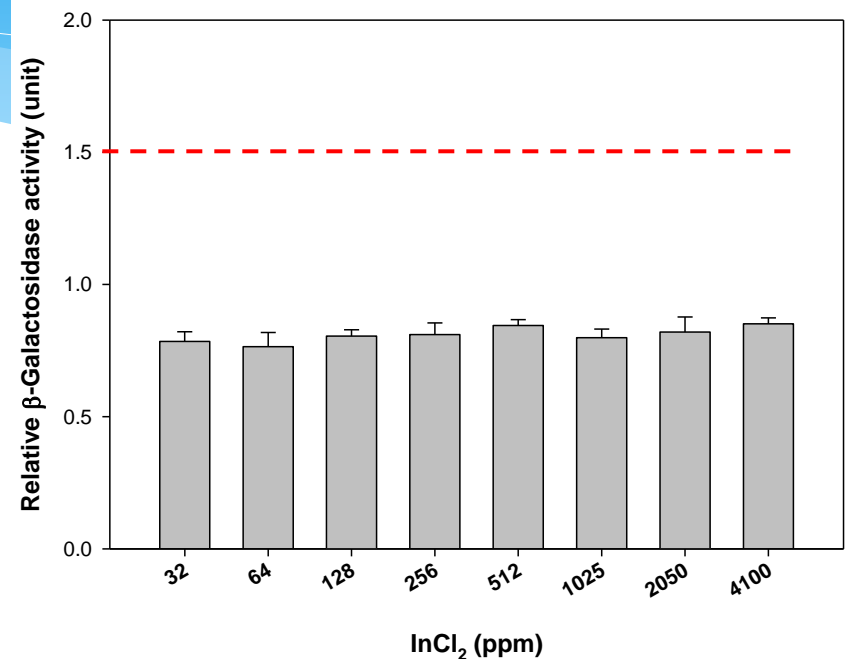
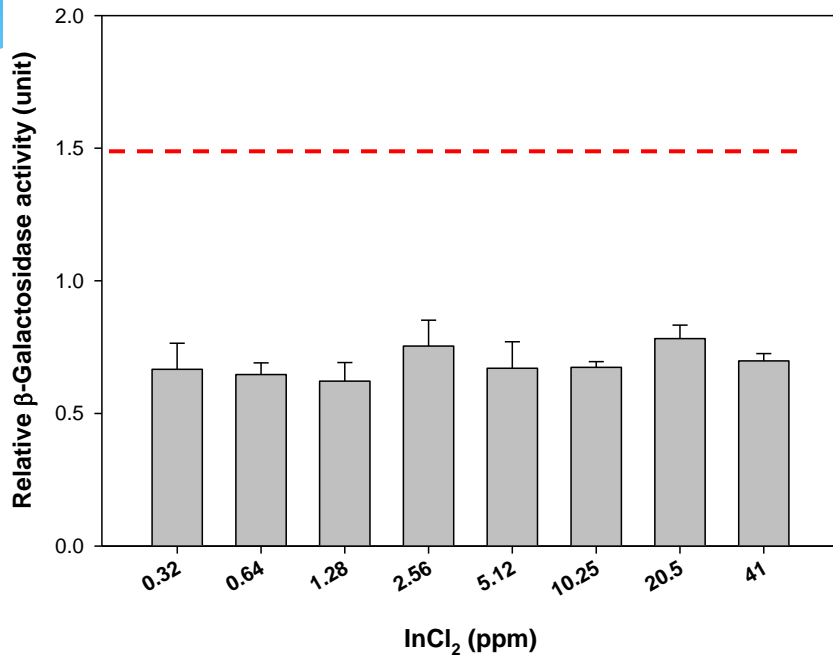
umu-test

- A low-cost assay
- High-throughput
- Short time requirement
- High sensitivity

Zebrafish embryo Toxicity test

- Direct visualization of anatomical defect caused by toxic compounds
- Short time requirement
- Effective animal model for teratogenicity assessment

Genotoxicity test of InCl_2



- * No genotoxic response was found on either diluted and concentrated InCl_2
- * The dashed line represents 2-fold of the control response (0.74 unit), which serve as the indicator for genotoxicity.

Conclusion

- * No genotoxic effect was found from InCl_2 exposure.
- * However, the absence of genotoxic potential doesn't rule out the potential of other biological toxicity.
- * Further investigation on teratogenicity of indium will be conducted using the Zebrafish embryo toxicity test.