Annals of Biological Research

Abstract

Evaluation of the Embryo-toxicity and Teratogenicity of Selected

Chemical Hair Relaxer against Zebrafish (Danio rerio) Embryos

Author(s): Christopher DS Mordeno and Josephine Joy V Tolentino

Chemical relaxers or hair straighteners are used to manage hair coarseness and straightness which can pose health risks and possible toxic effects to humans. Hence, this study targeted in assessing and evaluating embryo-toxic and teratogenic affects of hair relaxers on developing zebrafish embryos. The Fish Embryo Toxicity (FET) test was utilized to determine the toxicity and teratogenicity of zebrafish embryos. Concentrations of hair relaxers used were T1=0% (Control), T2=100%, T3=50%, T4=30%, T5=10%, T6=5%, T7=4%, T8=3%, T9=1%, T10=0.5% and T11=0.05%. Percent mortality and percent hatchability were recorded after 12 and 24 h post-treatment application (hpta). Statistical analyses showed significant differences on the percent mortality and percent hatchability between the treatments. Treatment concentrations ranging from 3%-100% were documented as lethal to zebrafish embryos while teratogenic effects were evident on the control, 0.05%, 0.5% and 1% treatment concentrations, respectively. These can be attributed to the chemical compositions and very basic pH of the hair relaxer. Therefore, this study was able to show the presence of teratogenic and embryo-toxic effects of chemical hair relaxers to developing embryos, which were not previously reported.

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