



Zebrafish, *Danio Rerio* as a Replacement Alternative Model Useful in CKDu Experiments

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Abstract. Zebrafish (*Danio rerio*) and its embryo has become a popular replacement alternative among the scientists because of many scientific attributes. As it is a model commonly used in ecotoxicology, our plan is to use this model to identify causative factors leading to chronic renal disease of unknown origin prevailing among poor, farming communities in Sri Lanka. This paper describes briefly the training underwent at University of Antwerp, Belgium and how zebrafish model could be used to address an important public health issue in Sri Lanka.

Keywords: Zebrafish · *Danio rerio* · Replacement alternative models
CKDu

Introduction

The Concept of Replacement Alternative

Interest of scientists has been deviating since 20th century, from the use of animals in their experimental work towards substituting with 'Alternatives', thus reducing the use of live animals in experiments. This 'Alternative' concept is principally the 'Replacement' alternative that was indicated in the book; 'The Principles of Humane Experimental Technique' written by Russell and Burch in 1959. Although many methods of replacement have been developed and used by researchers, most of these are not **absolute** replacement models. As absolute replacement models should not involve whole animals and animal tissues, in many instances models used by researchers are **relative**. Relative replacement models include lower vertebrates, invertebrates or animals having lower level of sentience and tissues, cells, sera and embryos etc. of animal origin. These relative replacement models of course reduce or prevent the use of conscious living vertebrates [1].

Scientific Importance of Zebrafish (*Danio Rerio*)

Among the accepted relative replacement models, the zebrafish (ZF) and its embryo model have been of interest to the researchers due to its wide spectrum of scientific applicability. ZF and its embryo have been used in diverse fields of science including