

Haematological changes in Korean rockfish, *Sebastes schlegeli* following exposure to waterborne cypermethrin

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An increasing number of synthetic pyrethroids are used as environmental friendly substitute of organophosphate and organochlorine insecticides. Pesticide pollution in coastal ecosystem of Korea is considered to be a cause of slow growth and prevalence of diseases in commercial fishes. Cypermethrin is classified as a semi-persistent substance and hazardous, since it persist for long time in water. Recently, its use as chemotherapeutant for the control of ectoparasite infestation in fish culture practices resulted the toxic effects on various non-target aquatic invertebrates. Thus, the main aim of this research was to evaluate time- and dose-dependent chronic toxicity of cypermethrin to the economically important Korean rockfish (*Sebastes schlegeli*). It was envisaged to investigate the haemato-biochemical alterations of rockfish in response to sublethal concentrations of commercial pesticide under the laboratory conditions. After 2 weeks of adaptation in test chambers, fish were exposed to test solutions of different concentration from 0.0, 0.05, 0.1 and 0.2 nM of cypermethrin. Ten fish per exposure concentration were anesthetized with buffered 3-aminobenzoic acid ethyl ester methanesulfonate after 4th and 8th week of exposure for haematological assay. Cypermethrin exposed-fish showed erythropenia low hematocrit level and hemoglobin content and hyperglycemia especially for long term exposure at higher concentration. Cypermethrin caused increased levels of serum glutamic oxaloacetic transaminase, glutamic pyruvic transaminase and alkaline phosphatase concomitantly the decreased concentration of chloride ion and blood serum osmolality, suggesting the disruptive activity of cypermethrin after 8 weeks exposure. Moreover, reduced level of serum total protein, albumin, cholesterol, lysozyme activity and significantly higher level of glucose, bilirubin and MDA attributed to an increased demand for energy by fish under stress, to cope with detrimental conditions imposed by the toxicant for a longer period.