Bioaccumulation of poly-chlorinated biphenyls isomers and chlorinated organic pesticides in hunted great cormorants (*Phalacrocorax carbo*) in Fereidoonkenar and Sorkhrood cities

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Abstract

In the world, many contaminants, such as heavy metals and persistent organic compounds, are released into the environment. Persistent organic compounds include polychlorinated biphenyls (PCBs), organic chlorine pesticides (OCPs), and so on. The persistence of these compounds and lipophilic, they tend to accumulate in the food chain. Although all vertebrates are susceptible to the effects of chlorinated organic compounds, but the birds due to worldwide distribution, being sensitive to environmental changes and on the top of the food chain are suitable for the study of bioaccumulation. Hence, In the winter of 2014 the Great Cormorant (*Phalacrocorax carbo*) was collected from the coast of the Caspian Sea in Mazandaran province where is under the agriculture and intensive use of pesticides. The PCB and OCPs contamination of the muscle tissue was analyzed by gas chromatography (GC). The amount of PCBs in Cormorant was 90 ng/g wet weight. Among the PCB isomers, 153PCB 118PCB, 138PCB has the highest concentration among isomers and contains 75% of the total 7 isomers. But, 52 PCBs and 101PCB isomers were found in the majority of samples at lower concentrations. The highest and lowest concentration of chlorinated organic pesticides were for DDTs (wet wt ng / g 46) and heptachlor (ng / g wet wt 2) respectively that is60 and 2 percent of chlorinated organic pesticides, respectively. Regarding the Chloride organic compounds found in Cormorant and according to its oral intake, new pesticide control strategies should be used to eliminate pesticide application inappropriately. Due to oral ingestion of cormorant, new strategies for pest control should be based on eliminating the use of pesticides to be used unwisely as today, this approach is being discussed in most of the topics of sustainable agriculture development.

Keywords: Poly-chlorinated biphenyls, Cormorants, Caspian Sea, Chlorinated pesticides.