

INVESTIGATION OF ORGANOCHLORINE PESTICIDE RESIDUES IN LIVER AND MUSCLE TISSUES OF ATLANTIC BLUEFIN TUNA (*THUNNUS THYNNUS* L., 1758) FROM GULF OF ANTALYA, MEDITERRANEAN, TURKEY

Figen Esin Kayhan¹ *, Sibel Golak², Nazan Deniz Kog¹ and Adem Golak³

¹ Marmara University, Science and Art Faculty, Kadikoy-Istanbul/TURKEY - fekayhan@my.net.com

² Istanbul University, Fisheries Faculty, Ordu C. No. 200, 34470, Eminonu-Istanbul/TURKEY

³ Aktuna Fisheries Company, Ugur Mumcu C. No. 311/A, Gazipaşa, Antalya/TURKEY

Abstract

The aim of this study, an investigation of organochlorine pesticide residues in liver and muscle tissues of Atlantic bluefin tuna (*Thunnus thynnus* L., 1758). The organochlorine pesticide residues were analysed in fish liver and muscle tissues by GC-ECD and confirmed by GC-MS. Organochlorine pesticide residues levels compared to reported values from similar studies conducted elsewhere in the other Mediterranean countries.

Keywords : *Pollution, Pesticides, Ecotoxicology, Eastern Mediterranean.*

Introduction:

Organochlorine pesticides are ubiquitous and persistent pollutants due to bioaccumulation in the food chain, either as such or as their metabolites, thus causing concern on the animals at the top of the food chain [1]. This pesticides and related chemicals originating from human activity or agricultural farming are discharged directly or indirectly into the receiving waters. The presence of these chemicals in the marine environment has become a global issue [2]. Organochlorine pesticides have toxic effects on the biota; the former because of their high environmental persistence and the latter because of their chemical and thermal stability [3]. Mediterranean is heavily polluted because of agricultural, industrial and domestic sewage wastes. Every year millions of oil has been transported by tankerships and due to unfortunate accidents and leakages do occur. Another very serious cause of pollution is chemical and petroleum wastes made on purpose to the sea. The increased use of various types of pesticides has led to concerns regarding the potential for contamination of environmental media (i.e., water, sediment and biota) and associated effects on human health and wildlife [4]. The aim of this study is to investigate the levels of organochlorine pesticides residues in the Atlantic Bluefin tuna (*Thunnus thynnus* L., 1758) from the Gulf of Antalya, Turkey.

Materials and Methods:

A total of 20 mature Atlantic Bluefin tuna (*Thunnus thynnus*) were collected from Gulf of Antalya, Turkey, in 2006. The organochlorine pesticide residues were analysed in fish liver and muscle tissues by GC-ECD and confirmed by GC-MS [5].

Results and Discussion:

Sea water circulation is relatively higher than other closed seas. This situation, place an important role in the dilution of pollutants. Because of physical properties of Mediterranean, its oxygen dissociation is more constant and sufficiently. In our study, the organochlorine pesticide residues in the fishes that has been analysed were almost the same with each other. Ueno *et al.* were determined specific accumulation of persistent organochlorine residues in bluefin tuna (*Thunnus thynnus*) collected from Japanese coastal waters. The concentrations of DDTs in bluefin tuna increased significantly with body length (30-190 cm). Their results suggest significance of dietary uptake of DDTs compared to the intake via the gill [6]. In this study, organochlorine residue levels have founded between normal ranges according to FAO/WHO. The levels of organochlorine residues in the Atlantic Bluefin tuna (*Thunnus thynnus*) from Gulf of Antalya were measured by Gas Chromatography-Mass Spectrophotometry (GC-MS) for monitoring organochlorine pesticide pollutions in Mediterranean Sea. However, further monitoring of these contaminants in the aquatic system is recommended to insure the protection of food sources in Turkey.

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