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Levels of Heavy Metals in Two Demersal Fishes, *Arnoglossus laterna* (Risso, 1810) and *Buglossidium luteum* (Walbaum, 1792) in Izmir Bay

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In this study, the quantity of data on the presence and content of heavy metals in two demersal fishes, (*A. laterna* and *B. luteum*) collected from Izmir Bay was accumulated between 1988-1989. The samples were chosen considering to their presence in every season and found them easily in the study area. The aim of this study was to determine the concentrations of Hg, Cd, Pb and Zn in the fillet of these fishes and compare the data of two years.

The analytical procedure applied involved a decomposition technique using HNO₃ - HClO₄ (5:1) acids in water bath with the temperature maximum 30°C under reflux system.

Determinations were carried out with Atomic Absorption spectrophotometer (Varian Techtron, Model 1250). Hg was determined by cold vapour technique using varian Model 65 vapour generation accessory and the other elements by flame (BERNHARD, 1976). The results have been calculated as µg/kg wet weight, medians and quartiles of data has been used for statistical evaluations (TUKEY, 1977; CLAUSSEN, 1988).

Concentrations of Hg in fillet of *A. laterna* didn't fluctuated much between 1988 and 1989 with lower quartile values of 9 and 13 µgHg/kg wet weight and with upper quartile 30-23 µgHg/kg respectively. Also, Hg concentrations of *B. luteum* in these two years ranged from 16 to 11 µgHg/kg as lower quartile and with the values 45-23 µgHg/kg upper quartile. It can be seen that Hg concentration has slightly decreased in 1989.

Cadmium concentrations of *A. laterna* ranged from 8 to 296 µgCd/kg as extreme values for 1988 while they varied from 72 to 334 µgCd/kg for 1989. Also, Cd concentrations of *B. luteum* ranged from 7 to 289 µgCd/kg in 1988 varied in between 56 to 175 µgCd/kg in 1989. So, Cd concentrations in *B. luteum* has increased in 1989 comparing to the data obtained 1988 (Table 1).

Lead concentrations of *A. laterna* was higher than of *B. luteum* generally. *A. laterna* has Pb concentrations between 127 to 4627 µgPb/kg as extreme values whereas accumulation in *B. luteum* varied between 94-3623 µgPb/kg in 1988. Also, Pb values obtained Pb from the samples collected in 1989 varied from 371 to 4138 µgPb/kg in *A. laterna*. It can be seen from the Table 1 that Pb concentrations in these organisms has decreased in 1989 comparing with these from 1988.

Zinc accumulations of *A. laterna* ranged from 3520-3863 µgZn/kg respectively as lower quartiles and 5669-5380 µgZn/kg as upper quartiles during 1988-1989. Also, Zn values of *B. luteum* ranged from 2680-2824 µgZn/kg as lower quartiles and 4325-3480 µgZn/kg as upper quartiles respectively during 1988-1989. The zinc values has decreased in 1989 in both fishes but Zn content of *A. laterna* was higher than of *B. luteum* (Table 1).

Table 1- Statistical values of trace metal concentrations in two demersal fishes (*A. laterna* and *B. luteum*) in Izmir Bay (µg/kg wet weight).

Species		Mercury		Cadmium		Lead		Zinc	
		1988	1989	1988	1989	1988	1989	1988	1989
A. laterna	Minimum	5	5	8	72	127	371	2751	2749
	Lower Quartile	9	13	39	83	531	771	3520	3863
	Median	20	17	161	102	2363	946	3915	4577
	Upper Quartile	30	29	223	130	2671	1695	5669	5380
	Maximum	75	62	296	334	4627	4138	11296	6863
		n=20	n=19	n=16	n=9	n=19	n=14	n=20	n=20
B. luteum	Minimum	4	7	7	56	94	639	2164	2395
	Lower Quartile	16	11	76	87	873	1077	2680	2824
	Median	26	22	106	100	1433	1156	3028	3288
	Upper Quartile	45	23	222	133	2045	1373	4325	3480
	Maximum	179	100	289	175	3623	1693	7990	3658
		n=23	n=13	n=17	n=8	n=20	n=9	n=23	n=14

A comparison of our data with those mentioned by other authors was not available because of lack of informations on this subject using these fishes on Turkish coasts. But, comparing with those reported from different areas of Mediterranean using similar kind of fishes, the heavy metal accumulations was not exceeded them (UYSAL, 1978; BARGAGLI at al. 1986).

However, the levels Pb indicated that we mustn't neglected it although the values are not high now.

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