

## *(Chalcalburnus chalcalburnus)*

\*

( )  
(*Chalcalburnus chalcalburnus*)  
AMA, LECO  
D ( )  
ppb / / / /  
)  
(p= / p= / p= / p= /  
( / p= / P= / )  
(p= / ) %  
( ppb) FAO ( ppb) WHO ( / ppb)  
( ppb) FDA

*Chalcalburnus chalcalburnus* :

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Email: ghr\_zolfaghari@yahoo.com : : \*

1. Advanced Mercury Analyzer
2. Threshold Level

[ ]

[ ]

ppb

[ ] ppb

[ ]

[ ]

(*Chalcalburnus chalcalburnus*)

/	/	/	(cm)
/	/	/	(g)
			( )

2. *Chalcalburnus chalcalburnus*

1. Quick silver

ppb / / / / .[ ] °C  
 ( ) Advanced Mercury Analyzer , LECO  
 .[ ] D  
 ( ) ppb

SPSS

( ) ppb  
 (*Chalcalburnus chalcalburnus*)

/	/	/	/		
/	/	/	/		
/	/	/	/		
/	/	/	/		

p

/ <sup>a</sup>	< /	< /		
< /	< /			
< /				

(p < / )

1. Kruskal-Wallis
2. Mann-Whitney U

(p= / p= / p= / p

( ) (p= / )

p= / )

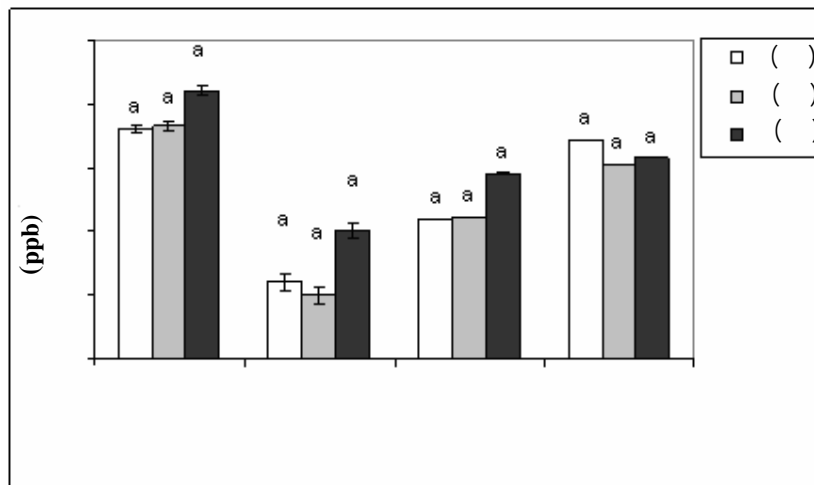
(p= / p= / p= / p= / p= / p= /

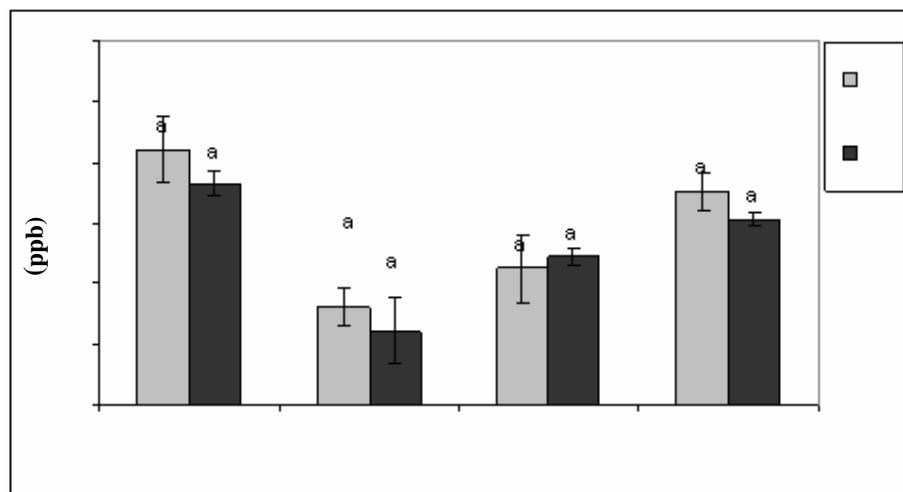
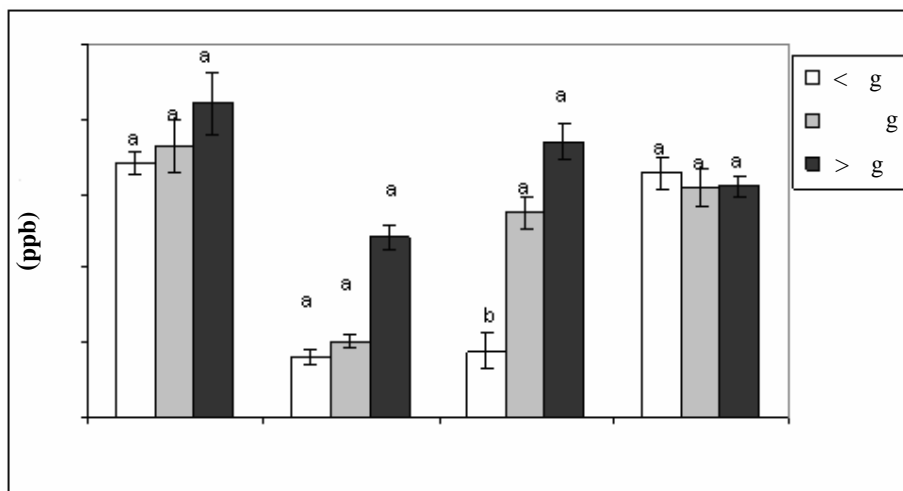
( ) (p= / )

p

b	a	a	
/	/	/	
/	/	/	
/	/	/	
/	/ <sup>c</sup>	/	

a  
u b  
%





( ) FDA FAO WHO

( / ppb)

1. World Health Organization
2. Food Agriculture Organization
3. Food and Drug Administration

(WHO)

[ ]

[ ]

:

$$\frac{(\text{Acipenser stellatus})}{(\text{Acipenser persicous})} \times (\mu\text{g/g}) = (\mu\text{g/g}) \times (\text{g/day})$$

: [ ]

$$/ ( / ) / \mu\text{g/g} / / \text{mg/day}$$

$$( / ) / \mu\text{g/g} \quad [ ]$$

$$/ ( / ) / \mu\text{g/g} /$$

$$( / ) / \mu\text{g/g} \quad (\text{US EPA})$$

$$\text{ppm} \quad / \text{mg/day} \quad [ ] \text{ (RfD)}$$

$$\text{ppm} \quad ( )$$

$$. ( \text{ppb} \quad \text{FAO/WHO}$$

$$[ ] \text{ (JECFA)}$$

$$/ \text{mg/day} \text{ (PTWI)}$$

(ppb)

(Threshold Level)

[ ]			WHO
[ ]			FAO
[ ]			FDA

1. Reference Dose  
2. Provisional Tolerable Weekly Intake

(ppm )

[ ]	a- / b- / c- / d- / e- /	a- <i>Huso huso</i> b- <i>Acipenser persicus</i> c- <i>Acipenser gueldenstaedtii</i> d- <i>Acipenser nudiiventris</i> e- <i>Acipenser stellatus</i>	
[ ]	/	White Sturgeon	Feraser
[ ]	a- / b- /	a-Lacke Trout b-Grayling	( )
[ ]		a- <i>Chondrostoma regium</i> b- <i>Acanthobrama marmid</i> c- <i>Chalcalbuenus</i> d- <i>Mossulensis</i> e- <i>Carasobarbus luteus</i> f- <i>Cyprinus carpio</i>	
[ ]	/		
[ ]	a- / b- / c- / d- / e- / f- / g- / h- /	a- Blue marlin b- Tuna c- Pacific saury d- Ribbon fish e- Sea perch f- Milk fish g- Tila pia h- Carp	
[ ]	a- / b- /	a- Orange spotted b- Spangled emporor	

ppb

/

ppb

[ ] ppb

DNA

[ ] ( ppb)

< <

RNA

<

[ ]

( )

p= / )

( ) p< /

( )

( / mg/day)

[5] Wicker A. M., Gantt L. K.; Contaminant assessment of fish *Rangia clams* and sediments in the lower Pamlico River, North Carolina, U.S Fish and Wildlife Service, Ecological Services; 1999.

[6] Jaffar M., Ashraf M., Rasool A.; «Heavy metal contents in some selected local freshwater fish and relevant waters»; *Pakistan Journal of Scientific and Industrial Research*; 1998; 3 (31): 189-193.

[2] Nriagu J. O., Pacyna J. M.; A quantitative assessment of worldwide contamination of air, water and soils by trace metals; 1988; *Nature* 333: 134-139.

[3] Cunningham A., Smhth S. L., Trippett J. P., Greene A.; A national fish consumption advisory data base: A step toward consistency; *Fisheries*; 1994; 19: 14-23.

[4] Harakeh S., Sabra N., Kassak K., Doughan B., Sukhan C.; Mercury and Arsenic Levels Among Lebanese Dentists: a Call for Action, *Bulletin of Environmental Contamination and Toxicology*; 2003; 70: 629-635.



- [8] Zolfaghari Gh., Esmaili-Sari A., Ghasempouri S. M., Hasanzadeh-Kiabi B.; Examination of Mercury Concentration in the Feather of Eighteen Species of Birds in Southwest Iran; *Environmental Research*. 104: 258-265.
- [9] WHO. Safety; International Programme on Chemical Environmental Health Criteria 118 for Inorganic Mercury. W. H. O. Geneva; 1991.
- [10] Ruell R., Henry C.; Life history observation and contaminant evaluation of Pallid sturgeon; Final report. U.S. Fish and Wildlife Service Region 6; Contaminants Program; 1994.
- [11] US EPA; Mercury Study Report to Congress; Office of Air Quality Planning and Standards and Office of Research and Development; Washington; DC; 1997.
- [12] JECFA; Summary and Conclusions of the 61st Meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA); JECFA/61/SC. Rome, Italy; 2003.
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- (*Acipenser stellatus*) (*Acipenser persicus*)  
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- [14] Agusa T., Kunito T., Tanabe S., Pourkazemi M., Aubrey D. G.; «Concentration of trace elements in muscle of sturgeons in the Caspian sea»; *Marine Pollution Bulletin*; 2004; 49: 789-800.
- [15] Macdonald D. D., Ikonomou M. G., Rantalaine A. L., Rogers I. H., Sutherland D., Oostdam J. V.; Contaminants in white sturgeon (*Acipenser transmontanus*) from the upper Fraser River, British Columbia, Canada; *Environmental Toxicology and Chemistry*; 1997; 16: 479-490.
- [16] Allen-Gil S. M., Gubala C. P., Landers D. H., Lasorsa B. K., Crecelius E. A., Curtis L. R.; Heavy metal accumulation in sediment and freshwater fish in U. S. Arctic lakes; *Environmental Toxicology and Chemistry*; 1997; 16: 733-741.
- [17] Karadede H., Unlu E.; Concentrations of some heavy metals in water, sediment and fish species from the Ataturk Dam Lake (Euphrates), Turkey. *Chemosphere*; 2000; 41: 1371-1376.
- [18] Kashima Y., Matsui M., Fukui S., Kizu K., Doi R.; Heavy metal levels in freshwater fish in Cambodia and Southeast Asia/Final Report of Research Program on the Environment in Cambodia to the Toyota Foundation; Group of Environmental Research in Cambodia; Niigata 111-124 (in Japanese); 1999.
- [19] Han B. C., Jeng W. L., Chen R. Y., Fang G. T., Hung T. C., Tseng R. J.; «Estimation of target hazard quotients and potential health risks for metals by consumption of seafood in Taiwan»; *Archives of Environmental Contamination and Toxicology*; 1998; 35: 711-720.
- [20] Demora S., Fowler S. W., Wyse E., Azemard S.; «Distribution of heavy metals in marine bivalves, fish and coastal sediments in the Gulf of Oman»; *Marine Pollution Bulletin*; 2004; 10: 1016.
- [21] Mackay R.; «Is Dental Amalgam Safe?»; Part 1 - Scientifically, There Is More Than Reasonable Doubt; *Journal of the Australasian College of Nutritional & Environmental Medicine*; 1993; 1(2): 5-9.