

Review of: "Cadmium Toxicity Induced Changes on Antioxidative Enzymes Level in Fresh Water Catfish *Channa Punctatus* (Bloch)"

Elif Fatma Topkara¹

¹ Ondokuz Mayıs University

Potential competing interests: No potential competing interests to declare.

Review of the manuscript:

The authors of the manuscript entitled "Cadmium toxicity-induced changes in antioxidative enzyme levels in freshwater catfish *Channa punctatus* (Bloch)" investigate how cadmium toxicity affects the enzymatic and non-enzymatic processes of *C. punctatus*. Cd is a toxic metal, and this study is a toxicological study.

Although the content of the text is well designed, there are many mistakes. Make the corrections in the PDF which I marked in red.

Besides the corrections in the PDF, the suggestions are reported below.

In Abstract:

- Delete the last two sentences. Add two sentences about the results and 1 sentence about the overall conclusion.

In Materials and Methods:

- Write descriptively about all experiments under the heading "Biochemical Assays. There are just two sentences for each experiment, and this is very inadequate. State which chemicals were used and in what quantities.
- In the heading "Reduced glutathione," it is written that GSH is measured in brain tissue. In the abstract, it is written that the research was conducted in the liver. Please clear up this confusion.

In Results:

- It is written that the data of SOD and CAT sections also increased compared to the control, but the situation is exactly the opposite. Check the data and correct accordingly. Tables 1 and 2 indicate these results decrease, but in the text, it is written to increase. This misperception ensures that the work is perceived differently in the minds of readers.
- Add a sentence explaining the "**, ***" signs below Tables 1 and 2.
- Figure 3 is not available for SOD data. Add, please.
- Aren't 30 and 60 days too long for an experiment? These values would be more striking if the time intervals were kept shorter. For example, 10, 20, 30, and 60 days. This is my opinion.

In Discussion:

- It says in the abstract and results figures that the study was done in the liver. However, there are different situations in the discussion part. Kidney data are mentioned in the 3rd, 4th, 6th, 9th, and 12th paragraphs. Where is the kidney data? Ovary data are mentioned in the 7th, 8th, and 12th paragraphs. Where is the ovary data? In the 2nd paragraph, the 45th and 90th days are mentioned. The study was conducted on the 30th and 60th days. There is information regarding GST in paragraphs 16, 17, 18, and 19. In the materials and methods section, it is mentioned how GST is viewed, but in the conclusion section, there is not a single datum about GST, neither in tables nor in figures. Either add GST data to the tables and make a figure related to GST, or remove it from the discussion section and materials and methods section.

In References:

None of the following references is in the text.

- Martin, J M and Whitfield, M (1983) The significance of the river input of chemical elements to the ocean, in C. S Wong, E Boyle, KW Bruland, J D Burton and E D Goldberg (eds.), Trace Metals in Sea Water, Plenum Press, New York.
- Mathur, A, Shrama, Y C, Rupainwar, D C, Murthy, R C and Chandra, S (1987) A study of river Ganga at Varanasi with special emphasis on heavy metal pollution. Poll Res 6:37–44.
- McCord, J M and Fridovich, I (1989) Superoxide dismutase. An enzymatic function for erythrocyte (hemocuprein). J Bio Chem 244:4039-4045.
- Meister A and Anderson M E (1983) Glutathione. Annu Rev Biochem 52: 711-760.
- Modak, D P, Singh, K P, Chandra, H and Ray, P K (1992) Mobile and bound forms of trace metals in sediments of the lower Ganges. Water Res 26:1541–1548.
- National Research Council (NRC) (1987) Biomarkers. Environ Health Perspect 74:3-9.
- Nriagu, J O and Pacyna, J M (1988) Quantitative assessment of worldwide contamination of air, water and soils with trace metals. Nature 333: 134–139.
- Payne, J F, A Mathieu, W Melvin, and L L Fancey (1996) Acetylcholinesterase, an old biomarker with a new future? Field trials in association with two urban rivers and a paper mill in Newfoundland. Marine Pollution Bulletin 32:225-231.
- Prasad, S, Mathur, A and Rupaniwar, D C (1989) Heavy metal distribution in the sediment and river confluence points of river Ganga in Varanasi – Mirzapur region. Asian Environ 11:73–82.
- Qu, W and Kelderman, P (2001) Heavy metal contents in the delft canal sediments and suspended solids of the river rhine: multivariate analysis for source tracing', Chemosphere 45: 919–925.
- Regoli, F, and Principato, G (1995) Glutathione, glutathione-dependent and antioxidant enzymes in mussel, *Mytilus galloprovincialis*, exposed to metals under field and laboratory conditions: Implications for the use of biochemical biomarkers. Aquat Tox 31:143-164.
- Saikia, D K, Mathur, R P and Srivastava, S K (1988) Heavy metals in water and sediments of upper Ganga. Indian J Environ Hlth 31:11–17.
- Scandalios, J G (2005) Oxidative stress: molecular perception and transduction of signals triggering antioxidant gene defenses. Braz J Med Biol Res 38:995–1014.

- Simeonov, V, Stratis, J A, Samara, C, Zachariadis, G, Voutsas, D, Anthemidis, A, Sofoniou, M and Kouimtzis, T H (2003) Assessment of the surface water quality in Northern Greece. *Wat Res* 37:4119–4124.
- Singh K P, Mohan D, Singh V K and Malik A (2005) Studies on distribution and fractionation of heavy metals in Gomti river sediments—a tributary of the Ganges, India. *Journal of hydrology* 312:14 -27.
- Singh, H P and Mahaveer, L R (1997) Preliminary observations on heavy metals in water and sediments in a stretch of river Ganga and some of its tributaries. *J Environ Biol* 18: 49–53.
- Srivastava, S K, Gupta, V K Anupam and Mohan, D (1994) Status of some toxic heavy metal ions in the upper reaches of river Ganges. *Indian J Chem Soc* 71: 29–34.
- Subramanian, V, Van Grieken, R and Van't dack, L (1987) Heavy metal distribution in the sediments of Ganges and Brahmaputra rivers. *Environ. Geol. Water Sci* 9:93–108.
- Suter, GW, II, (1990) Use of biomarkers in ecological risk assessment. In: McCarthy, J F, Shugart, L R (Eds.), *Biomarkers of Environmental Contamination*. Lewis Publishers, Boca Raton, FL, USA, 419-428.
- Timbrell, J (1998) Biomarkers in toxicology. *Toxicology* 129:1-12.
- Sarkar, U K, Gupta, B K, and Lakra, W S (2010) Biodiversity, ecohydrology, threat status and conservation priority of the freshwater fishes of river Gomti, a tributary of river Ganga (India). *The Environmentalist*, 30: 3-17.
- Viarengo, A (1989) Heavy metals in marine invertebrates, mechanisms of regulation and toxicity at cellular concentrations. *Rev Aquat Sci*, 1: 295-317.
- Walker, C H, Hopkin, S P, Sibly, R M, and Peakall, D B (1996) *Biomarkers. Principles of ecotoxicology*. Taylor and Francis, London 175-194.

Exactly 23 references are in the reference section but not in the text. What's worse is this:

- References in the text are not in the References section. Where are the references mentioned in the text? How can this happen? This many errors are unacceptable.