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Sublethal Effect of Pickling Process Wastewater from a Steel Industry on the Haematology of *H.Fossilis* in Long Duration Experiments

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Abstract: *Industrial waste discharge is one of the major source of stream pollution. Waterborne wastes appear to be an inevitable result of nearly all manufacturing industries since water is used for many purposes by industries worldwide. Most and frequently all of the wastewater need to be discharged from plant premises. Such discharges are contaminated with varying amount of materials used in plant e.g. raw materials, unwanted substances accompanying raw materials, intermediate products, by products and other substances used in the processing. In this context a steel processing industry producing steel sheets is studied with respect to its pickling process wastewater at raw and neutralized levels using freshwater catfish H.fossilis. Sublethal effect of raw and neutralized wastewater are studied in long duration experiments of 10 days in laboratory level to assess the changes in haematological parameters of fish. The studied haematological parameters include total erythrocyte count, total leucocyte count, haemoglobin content, Packed Cell Volume, Clotting time, ESR, MCV, MCH and MCHC. Significant changes in haematological parameters of H.fossilis were noticed at sublethal levels too depicting the impact of wastewater on the haematology of the fish. The changes were more in raw wastewater*

Keywords: *H.fossilis*, Haematology, Sublethal Effect, long duration experiments, Pickling Process Wastewater

REFERENCES

[1]. APHA (1989). Standard Methods for the Examination of Water and Wastewater, 17th Edition, American Public Health Association, New York.
[2]. Dacie J. V.and Lewis S.M. (1975). Practical Haematology, Churchill Livingstone, London, UK.
[3]. Hassler T. S. , Neuhold J.M. and Sigler W.F.91967). Effects of Alkyl benzene sulfonate on rainbow trout. U. S. Dept. Interior, Bur. Sport Fish. Wildl. Tech Paper, 16 : 1-15.
[4]. Helawell J.M.(1986). Biological Indicators of Freshwater Pollution and Environmental Management, Elsevier Applied Science Publishers, London and New York.
[5]. Johansoon-Sjobeck M.L. and Larsson A.(1978). The effect of cadmium on the haematology and on the acivity of delta aminolevulinic acid dehydratase on blood and haematopoietic tissues of flounder pleuronectesflesus (L.). J.Environ.Res.17: 191-204.
[6]. Larsson A, Bengtsson B.E. and Swanberg, O.(1976). Some haematological and biological effects of cadmium on fish In: Effects of pollutants on Aquatic Organisms (Ed. Lockwood A.P.M.) Cambridge University press, London, 2; 34-35.
[7]. Mckim J.M, Christensen G.M. and Hunt E.P.(1970). Changes in the blood of brook trout (*Salvelinusfontinalis*) after short term and long term exposure to copper. J. Fish. Res. Board of Can. 27: 1883-1889.
[8]. Murty A.S.(1986). Toxicity of pesticides to Fish, Vol II, CRC Press, Boca Raton, Florida,pp. 143.
[9]. Sarkar R, Chaudhari P. R., Sitre S and Gajghate D.G.(1995). Toxicity testing through Fish Bioassay and Its Application in India, in "Pollution and Biomonitoring " Tata McGraw Hills Publ.Company, New Delhi.

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[10]. Sinha Y.K.P. and Kumar K 91991). Haematology of Anabas testudineus (Bloch).J.Appl.Zool.Res. 2 : 13-16.

[11]. Sood R (1996). Haematology for Students and Practitioners, 4th Edition, Jaypee Brothers Pvt. Ltd. New Delhi, pp. 397.

[12]. Sprague J.B.(1969). Measurement of pollutant toxicity to fish I: Bioassay Methods for Acute toxicity, Water Res. 3 : 793-821.

[13]. Thakur N and Sahai S.(1986). Carbaryl induced haematological alterations in the teleost Garragotylagotyla (Gray) In Proceedings of Symposium on "Man Development Bioresources and Enviornment". H. S. Gour Vishwavidyalaya, Sagar, M.P. Dec. 26-28 pp. 339-344.

[14]. Wintrobe, M.M.(1973). Clinical Haematology, 7th Edition, Lee and Fabiger, Philadelphia, pp. 935.