

Teratogenicity and embryotoxicity of sludge from textile industries at Pali (India) in Swiss albino mice exposed during organogenetic period

Himani Tiwari

Indian Institute of Health Management Research, India

Dyeing and printing of textile, being a traditional industry of Rajasthan, India possesses a heavy demand in the country and even outside due to which a good number of textile industries have come up in the area and employs a great number of workers that may possibly be exposed to toxic compounds. Pali district comprises of over 800 textile units engaged in printing and dyeing of the cloth which discharges approximately 34 million litres untreated effluent per day (mld) into the Bandi river. The present investigation was carried out to assess the teratological effects of in-utero exposure of sludge leachate from textile and dyeing industries located in Pali, Rajasthan. Sludge was collected at the combined effluent treatment plant (CETP). Two groups of 10 pregnant Swiss albino mice each, were given sludge leachate of 1/10 and 1/100 dilutions with water ad libitum from 6th day to 15th day of gestation covering the critical period of organogenesis. Cesarean sections were performed on day 18 of gestation and all foetuses were examined for reproductive and teratological tests. Sludge induced maternal toxicity was evidenced by significant increase in leachate consumption, reduction in body weight gain and reduction in fur of the body. Developmental toxicity was evidenced by a significant decrease in foetal weight per litter, increase in the number of resorptions and an increase in total number of foetuses showing bone retardation and skeletal variations (specially of skull, sternbrae and vertebrae). The leachate of the sludge that is being dumped in the open areas of the town Pali seems to elicit teratogenic as well as embryotoxic potential as indicated by the findings of the present investigation.

Keywords: Teratology; Sludge; Foetus; Embryotoxicity

Biography

Dr. Himani Tiwari has completed her Ph.D. at the age of 25 years from Rajasthan University and guided 7 students for Mphil course from Madurai Kamraj University. She completed her MBA in 2008. She has teaching experience of 12 years (10 teaching and 2 research), she has been awarded National gold Medal from Academy of Environmental Biology BRPM, the youngest Scientist award for the year 2002, received another National award from Academy of innovative research in Principal Investigator in DST student project entitled "Assessment of teratogenicity and embryotoxicity of sludge from Sanganer tie-die industries, in Swiss Albino mice" in 2009, Published 2 papers and 7 abstracts in reputed journals and serving as an water and Sanitation Specialist in Health of Urban Poor Project aided by USAID.

dr.himanitwari@gmail.com