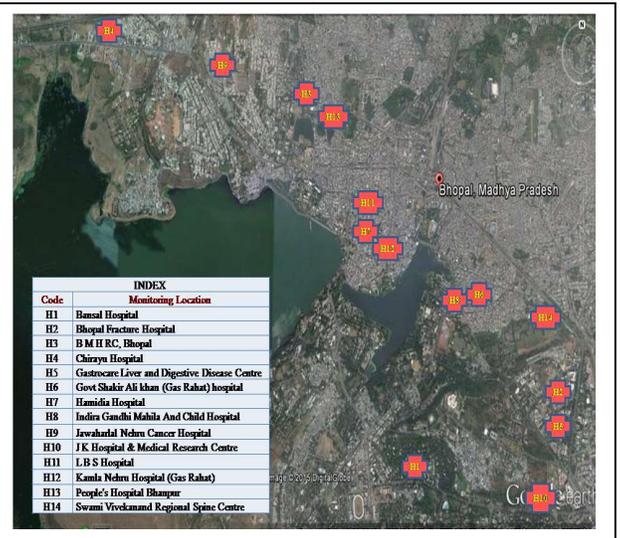


Toxicity of Bio Medical Waste Effluents

Objective: Biomedical waste is generated from hospital activities, such as the diagnosis, prevention, or treatment of diseases. Common generators (or producers) of biomedical waste include hospitals, health clinics, nursing homes, emergency medical services, medical research laboratories, offices of physicians, dentists, and veterinarians, home health care, and morgues or funeral homes. Biomedical waste is highly toxic and infectious, if discharge into the environment without treatment poses very harmful impact to surroundings. Biomedical waste effluent may affected the aquatic life when it discharged in to the natural water. Fish are the primary bio indicator as they are very sensitive towards the pollution. The objective of study was carried out to know about toxicity level of effluent discharge by various hospitals located in Bhopal city. Total fourteen hospitals were selected for study is depicted in table and figure.

H1.	Bansal Hospital Shahapura, Bhopal
H2.	Bhopal Fracture Hospital & Surgical Centre, Arera Colony, Bhopal
H3.	Bhopal Memorial Hospital and Research Centre, Bhopal
H4.	Chirayu Hospital, Bairagarh Kalan, Bairagarh, Bhopal
H5.	Gastrocare Liver and Digestive Disease Centre, Arera Colony, Bhopal
H6.	Government Shakir Ali khan(Gas Rahat) hospital, Bhopal
H7.	Hamidia Hospital, Royal Market, Bhopal
H8.	Indira Gandhi Mahila And Child Hospital, Bhopal
H9.	Jawaharlal Nehru Cancer Hospital Idgah Hills, Bhopal
H10.	J K Hospital & Medical Research Centre in Kolar Road, Bhopal
H11.	L B S Hospital, Motia Talab Road Bhopal
H12.	Kamla Nehru Hospital (Gas Rahat), Bhopal
H13.	People's Hospital Bhanpur, Bhopal
H14.	Swami Vivekanand Regional Spine Centre, M P Nagar, Bhopal



Monitoring of Biomedical liquid waste was performed as per guidelines of Central Pollution Control Board and toxicity test performed as per BIS: 6582 (Part 2) : 2001 method.

Bio Medical Treated Effluent Monitoring



Central Laboratory



Picture : E.T.P, Hamidia Hospital, Bhopal



Picture : E.T.P, Peoples Hospital, Bhopal



Picture : E.T.P, BMHRC, Bhopal



Picture : E.T.P, Indira Gandhi Hospital, Bhopal



Picture : E.T.P, J.K. Hospital, Bhopal



Picture : E.T.P, Bansal Hospital, Bhopal

The result reveals the following observations:

CODE	I Quarter	II Quarter	III Quarter	IV Quarter
H1.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H2.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H3.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H4.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H5.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H6.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found two*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H7.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found Two*	Toxicity factor (Tf) was found one *
H8.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H9.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found two*
H10.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H11.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	The toxicity factor (Tf) was found Four *
H12.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H13.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *
H14.	Toxicity factor (Tf) was found one*	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found one *	Toxicity factor (Tf) was found two*

Remark : *100% survival seen in observed Toxicity factor = dilution factor (Tf 1 for 1:1 Ratio of Waste water to test water (by volume) similarly 2 is for 1:2, 4 is for 1:4) after 96 hrs. Standard Tf =1 represent test condition standard dilution water containing 100 mg/L Potassium dichromate, all fish should survive.
Fish Species used for test: Zebra Fish (Brachydanio rerio) Fish size-30±5 mm and wt- 0.2 to 0.3 gm], Temp: 25±1.0°C.

Summary:

The study concluded that treated effluents from most of monitored hospitals were found free from acute lethal toxicity.