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Waste water treatment by combination of down flow hanging sponge (DHS) bio-tower with up-flow anaerobic sludge blanket (UASB) system

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Water is an environmental, social and economic asset needs to be managed with the objective of conserving a common patrimony in the interests of the community at large. In spite of unprecedented advancement in technology, globalization and urbanization across the world, a vast number of developing countries are lagging behind in providing basic sanitation and adequate water supply to their people. Discharge of chemicals from various industries causes hazardous effects on humans, animals and environmental balances. Substantial efforts are being made to document, understand, and explain the science behind these issues all over the world. Our study is concerned with the measurement and analysis of sewage effluents of Karnal and Panipat city(Haryana State) being drained into Yamuna River an important tributary of our pious Ganga in the region of eastern Haryana(INDIA). The sewage samples have been analyzed for BOD, COD, Total nitrogen, ammonium, TSS, VSS, ORP and pH including the concentration of toxic metals [lead (Pb), chromium (Cr), cadmium (Cd), and arsenic (As)] in the collected samples from Panipat city .The UASB (Upward Flow Anaerobic Sludge Blanket) is one of the existing, economically attractive method for sewage treatment well suited for tropical and subtropical countries. Anammox process offers the possibility of removing ammonia nitrogen from wastewater with partial nitrification. The results of investigations show tremendous decrease in BOD and COD (up to 85 - 90%) on treatment with DHS (Down-flow Hanging Sponge) Bio-Tower, a combination of anaerobic (UASB) with aerobic (DHS) and advocating it as a self-sustainable sewage treatment for developing countries.

Biography

Dr. Rakesh Kumar Bhardwaj has completed his PhD from Kurukshetra University Kurukshetra India. He is working as Associate Professor in the Department of Chemistry at Dyal Singh College Karnal India since 1990. His research interest includes the Physico-chemical and spectroscopic studies of binary liquid mixtures including the H-bonded dimmers structure using DFT(Density Functional Theory) . Now a days working on DHS (Down Flow Hanging Sponge)Bio-Tower a waste water treatment system (combination of anaerobic and aerobic). He has published more than 20 research papers in The Journals of International repute and Ten Text books of Physical Chemistry. He has orally presented his research Papers and talk at numbers of international conferences in India and abroad Hungary(Twice) , Thailand , Macau. He is the recipient of many fellowship & travel grants from international organization viz OPCW, Tokyo University Japan, Indian National Science Academy visiting Fellowship (scientist Exchange Programme) including the Bharat Shiksha Ratan Award 2012. Morover in 2011 he was shortlisted among the Top ten finalists for the best Chemistry Teacher award on all India base by Tata Group in combination with ACT, NCL Pune and IISC Bangalore.

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