

## Graphene Modified Anodes in a Cross-Linked Microbial Fuel Cell (CMFC) for the Treatment of Real Wastewaters and Energy Generation

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The objective of the paper is to investigate a laboratory scale sand-activated carbon based system as a post treatment option for Up-flow Anaerobic Sludge Blanket Reactor (UASBR) effluents. The performance of combined sand and activated carbon system using 0.45 mm diameter sand particles and granular activated carbon with a maximum flow rate of 9.4 mL/min was observed for a period of 121 days. Performance monitoring parameters were measured and found maximum removal in terms of BOD (91.98%), COD (93.54%), TSS (98.36%), TDS (82.62%), NH<sub>3</sub>-N (95.55%), Nitrite-N (91.13%), Nitrate-N (86.72%), Phosphorous (92.76%), Total Coliform (99.9%) and Fecal Coliform (99.9%). The intensity of microbiological activity was found increased in the system with time which resulted in biological activation of the sand and activated carbon bed. Overall, sand and activated carbon based system was found efficient, simple and cost effective post treatment option for UASB reactor.

### Biography

Arvind Kumar Mungray has his expertise in biological wastewater treatment especially in UASB and its post treatment systems. Extension of his research area is towards Microbial Fuel Cell (MFC) and therefore working also on the improvement of the design of MFC for decentralized waste water treatment. He is also focusing on making hybrid systems which can be utilized in rural areas as a sustainable solution for waste water treatment.

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