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Development and evaluation of microbial consortium for sewage treatment

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Wastewater or sewage is one of the byproducts of various anthropogenic activities such as showering, dishwashing, laundry, flushing the toilet and industrial processes. Municipal wastewater carries organic and inorganic compounds, heavy metals, high microbial load and suspended solids which are hazardous for biological systems if released into fresh water bodies, hence must be treated to reduce the contamination of fresh water. The current situation of wastewater generation and its management raises an alarm and therefore, requires a desperate need to develop new techniques that could effectively treat wastewater and the treated water could potentially be used to meet the increasing water demand. Most of the wastewater treatment facilities require an upgrade in the process to match the increasing water quality standards with less chemical investment. Biological methods with technological investment such as immobilization may be a good option for eco-friendly wastewater treatment. Hence the objective of the present proposal is to develop and evaluate immobilized microbial consortia from microbial isolates for waste water treatment without increasing the microbial load of the wastewater. For treatment microbial isolates will be isolated and screened for waste treatment capacity. Then selected isolates will be used to prepare consortia and immobilized on non-hazardous matrix. Selected microbial isolates were immobilized on sponge gourd (*Luffa aegyptiaca*) fibres as a support matrix and used for sewage treatment. During initial trials immobilized consortia was proved effective in waste water treatment. Further screening of more isolates and scale up of waste treatment is needed and will be planned.

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