

Case Study 01 - Bioremediation of Open Drains

BioXRem BXGE 0817 (Old code BXGE 0201) is a potent combination of bespoke microbial consortium that has been developed to address the issues of BOD, COD, Ammonical Nitrogen and TSS for treatment of wastewater flowing in Open drains, Natural Water bodies and STPs. Our microbial consortium has been developed after thorough screening of each of the species for its potency to breakdown the complex organic molecules present in the effluent at our state-of-the-art R&D & Manufacturing facility at Hosur, TN.

Case Study – Bio-remediation of Open drains at Kanpur, Prayagraj, Varanasi, Mathura and Dehradun using BioXRem 0817

Introduction:

The Hon'ble National Green Tribunal (NGT) order dated 28/08/2019 in OA No. 593/2017, mentions that all Municipalities have to ensure 100% sewage treatment or at least to the extent of in-situ remediation of drains before the commencement of setting up of sewage treatment plants. In order to comply with this order, the Municipalities across Uttar Pradesh and Uttarakhand had released tenders for treatment of drains through Bioremediation. BioXgreen was awarded the contracts from Kanpur, Prayagraj, Varanasi, Mathura-Vrindavan, Moradabad, Lucknow and Aligarh at Uttar Pradesh and one from Dehradun in Uttarakhand.

Problem Statement:

The waste water flowing into these drains were polluting River Ganga, Yamuna and their Tributaries in UP and River Suswah in Dehradun.

Objective:

To treat the wastewater in the drains and to achieve the following discharge standards as defined in the tender post Bio-remediation:

SN	Parameter	Expected Output
1	BOD ₃ , 27 (Biochemical Oxygen Demand) of filtered sample (mg/L)	≤30 mg/l OR 70% reduction of its inlet concentration, whichever is lower
2	COD (Chemical Oxygen Demand) of filtered sample (mg/L)	≤150 mg/l OR 70% reduction of its inlet concentration, whichever is lower
3	TSS (Total Suspended Solids) (mg/L)	≤100 mg/l OR 70% reduction of its inlet concentration, whichever is lower
4	PH	6.5-9.0

Results:

We have successfully treated a total of 71,000 Million Litres of wastewater flowing through open drains.

The average treated water quality values are presented below:

SN	Parameters	Inlet	Outlet
1	pH	6.5 to 9	6.9 to 7.5
2	BOD (mg/L)	110 to 250	10 to 15
3	COD (mg/L)	28 to 1200	75 to 90
4	TSS (mg/L)	150 to 450	20 to 80

Mechanism:

- ❖ Pollutants are taken up by microbes for their own metabolism by breaking it down in to simpler fractions and eventually mineralizing it into Carbon-di-Oxide and Water.
- ❖ This activity of microbes acts as a bio-filter in natural water bodies.
- ❖ This process could be further enhanced by immobilizing these microbes on fibres or on other solid support surfaces

Limitation of Liability:

The information is based on our current level of knowledge and cannot be considered exhaustive. The user, under its own responsibility, shall respect all the existing provisions on health and safety and shall verify every time the features and the specific and appropriate way to use the product. The users must satisfy themselves that there are no circumstances requiring additional information or precautions or the verification of details given herein

Advantages:

- Eco-friendly process.
- Action highly specific on target compound
- Less expensive than chemical treatment
- Complete degradation and clean up through mineralization of the target pollutant
- Does not transfer contaminants from one environment to another
- Uses a natural process
- Good public acceptance
- Process is simple

Performance

- Accelerated enzymatic degradation.
- Synergistic action allows the consortium to work faster and more effectively.
- Enhanced Aerobic performance

Count: 2 X 10⁷ CFU

Breakdown Pathway

Aerobic and Facultative Anaerobic

Dosage

0.5-5 ppm

Packaging

Available in 5Kg and 25Kg packs

Storage/ Coverage

- Store in cool and dry place away from direct sunlight.
- Keep container closed when not in use.

Safety precautions

Use long sleeved clothing, rubber gloves and chemical safety goggles. Wash hands & face before eating, drinking or smoking after handling product

Note

On accidental ingestion, give victim water or milk to drink to dilute the product. Induce vomiting only if advised by physician.