

*Microbial Bioremediation – A Nature Based Solution For
Treatment of Wastewater Flowing through Drains, Canals,
Lakes, Oxidation Ponds and Rivers*

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:SOLVE:
YOUR WASTE - OUR SOLUTION



Bioremediation

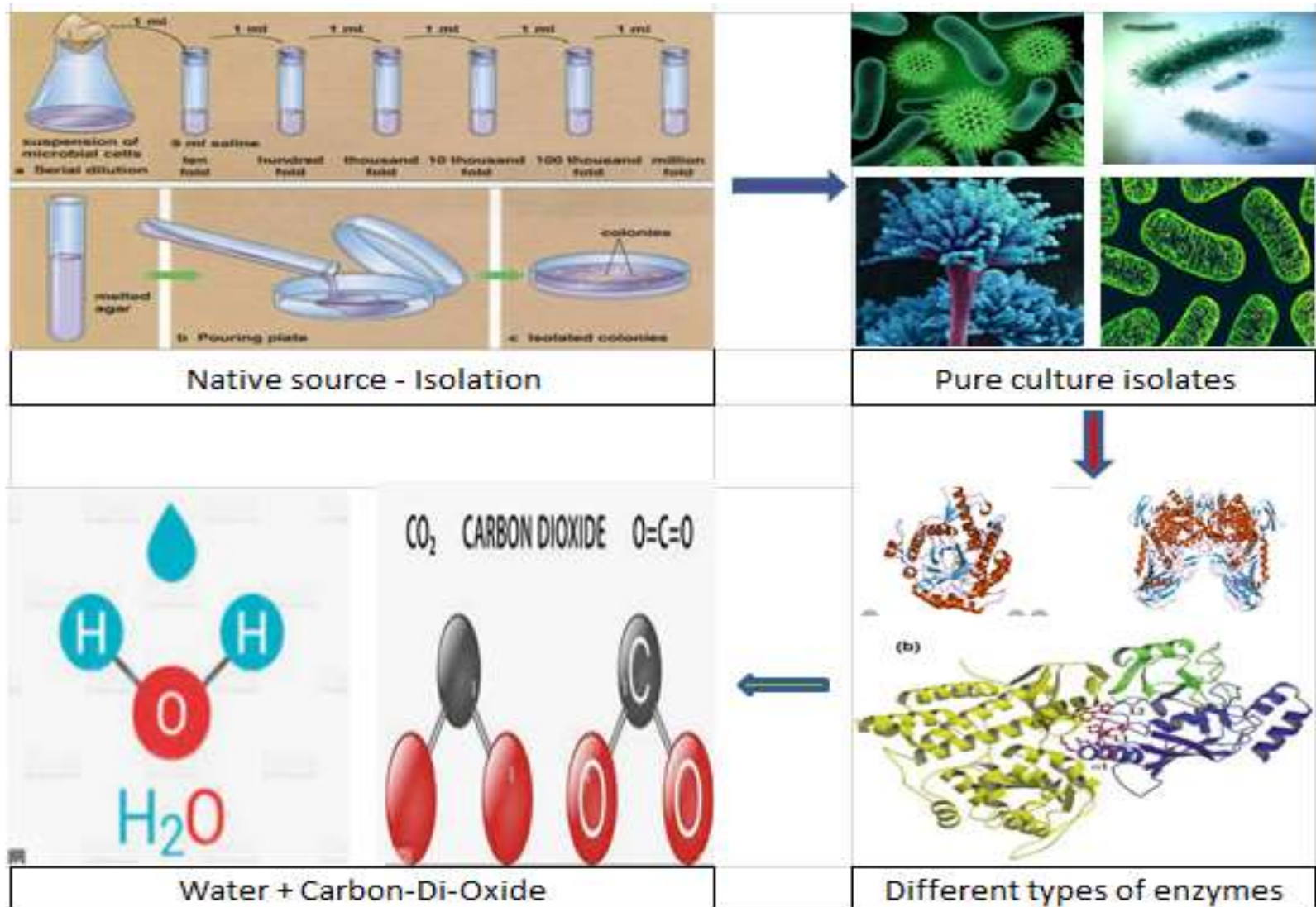
- Bioremediation is a treatment process that uses naturally occurring microorganisms (yeast, fungi or bacteria) to breakdown complex organic molecules leading to partial or complete mineralization of the pollutant through a series of biochemical process.

What does Microbes do?

- Microorganisms such as bacteria are considered as scavengers. They simply consume (enzymatically) contaminants, convert them and then let off carbon dioxide and water via several metabolic pathways.

Why create a PURE CULTURE BASED MICROBIAL CONSORTIA

- Since the contaminants present in waste water are very complex and can not be treated completely by single type of Bacteria.
- The contaminants can be efficiently removed by Pure culture based microbial consortium which act in symbiotic manner.
- The breakdown of organic matter via microbial consortium is brought about through sequential metabolism in which the byproduct of one group of microorganism is used by another group of microorganism as food and finally converted into water and carbon dioxide.
- **Bioremediation can be adopted to treat the intervening source point pollutants flowing in through Open and Closed into Natural water bodies like Lakes and Rivers**



Resource

Recovery

Approach

➤ **Multi-disciplinary Involvement**

- Engineering
- Chemistry
- Biological

➤ **Clear Objective**

➤ **Planning**

- Site Visit
- Data Collection in terms of water quantity and quality
- Topography report and Survey records
- Designing the treatment based on the factors affecting the efficiency of the process

➤ **Methodology to ensure success in Bio-remediation:**

- Preliminary physico analysis of the water to understand the nutrient and organic level
- Selecting the right ingredients and the recipe of consortium in the microbial formulation that remains stable even in the most challenging environment
- Design of unique blend of Aerobic Microbes to suit the prevalent waste water characteristic.
- Microbial selection based on their ability to degrade organic material and nitrify ammonia
- Design of any mechanical or aerobic intervention (if required).
- Design and establish the dosing schedule
- Monitoring of the waste water body to ensure achievement of the desired results.
- Ensure the maintenance dose being maintained post establishment of the process post stabilization.



- Helps alter the metabolic capabilities of native microorganisms, further improving the biological process efficiency
- Energy efficient process – Very low energy as no major capital equipment needed.
- Highly potent consortium – works at low dosage
- Deliver improved process efficiency and enhanced output in terms of BOD, COD and Nutrient reduction by introduction of pure microbial cultures to efficiently oxidize organic compounds with the aid of molecular O_2 into CO_2 , water, and a new cell.
- Help overcome the inefficiencies of the conventional biological treatment facilities currently operational in sewage treatment plants.
- Induces a cumulative effect on increasing the biomass activity, growth efficiency, and enzyme production
- Pure culture microbial consortium serve to overcome feedback regulation and catabolic repression, as the products of one microorganism act as substrate for the other.
- Customized Bespoke consortium developed by our microbiologist team, based on target pollutant
- Quick start up and stabilization within 60 days
- Quick upset recovery from unprecedented shock loads
- Can achieve the new CPCB discharge standards without heavy CapEx investment



Resource

Recovery

Rejuvenation of Natural Waterbodies and STPs for improving water quality

- These pure culture based bio-culture consortium are able to improve performance efficiency through bioremediation of sewage in open canals and STPs to achieve
 - **BOD < 10 mg/L**
 - **COD < 50 mg/L**
 - **TSS < 20 mg/L**
 - **Total Nitrogen < 10 mg/L**



Rehabilitation of Malad WWTF-Treatment of Sewage Water by Bioremediation Technology (Flow 180 MLD)



Rehabilitation of Versova WWTF-Treatment of Sewage Water by Bioremediation Technology (Flow 90 MLD)



Bioremediation of Aligarh Drain and Jafri Drain in Aligarh Nagar Nigam (Flow 175 MLD)



Bioremediation of Kukrail Canal and GH Canal in Lucknow Nagar Nigam (Flow 279 MLD)



Bioremediation of Assighat drain in Varanasi under Jal Kal Vibhag (Flow 45 MLD)



Bioremediation of 24 Drains in Moradabad for Moradabad Nagar Nigam (78 MLD)

Resource

Thank You!!!