



BIONICS
ENVIROTECH

BIONICS ENVIRO TECH PVT LTD NANOZYME TECHNOLOGY

Sugar & Distillery Wastewater Treatment Solutions

Advanced Biological Technologies for Sugar Mill ETP,
Distillery ETP, Biomethanation, Fermentation &
Biogas Enhancement.

**15
YEARS**

OF EXPERIENCE IN
WASTE WATER TREATMENT

15,000+
**SATISFIED
CUSTOMERS**
IN ALL OVER INDIA



Reducing
COD



Reducing
BOD



Zero Sludge
Process



Sustainable
Water Management

Transforming Waste Water Restoring Tomorrow

AWARDS & RECOGNITIONS



THE TIMES OF INDIA



www.bionicsenviro.com



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ABOUT BIONICS

Research-driven biotechnology company
manufacturing Nanozyme Bioculture.



63
Beneficial
Bacteria



SSF
Technology
(Solid State
Fermentation
Technology)



Zero
Sludge



PAN
India



Strong
R&D



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INDUSTRY CHALLENGES

Key wastewater issues faced by sugar and distillery industries.



High COD



High BOD



Colour



Odour



Sulphate



Organic Load



**Molasses
Spent Wash**



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SUGAR MILL PROCESS

Sugarcane to Effluent Treatment Flow



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EFFLUENT GENERATION

Various operations in the sugar industry generate wastewater with high organic load and other pollutants.

1. SUGAR MILL



Generated from cane cleaning, washing, juice extraction, evaporation & other processes.



2. DISTILLERY



Spent wash from fermentation, distillation & spent lees handling operations.



3. CPU (CONDENSATE POLISHING UNIT)



Regeneration & rinse water from ion exchange and polishing processes.



4. COOLING TOWER



Blowdown containing dissolved solids, suspended solids, scaling & corrosion by-products.



5. BOILER BLOWDOWN



Blowdown water containing dissolved salts, TDS, suspended solids & corrosion products.



COMMON CHARACTERISTICS



COD

High COD



BOD

High BOD



TDS

High TDS



High Colour



High Sulphates



Organic Load



pH

Variable pH

Effective treatment of these effluents is essential for environmental compliance and water sustainability.



Protect Environment



Ensure Compliance



Enable Sustainability



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NANOZYME SOLUTION

Advanced biological solutions for complete treatment and resource recovery
in sugar & distillery industries.

1. ETP (Effluent Treatment Plant)



Reduces COD, BOD,
TSS, Colour & Odour.
Improves water
quality and ensures
statutory compliance.



2. AD (Anaerobic Digestion)



Enhances digestion
of organic matter,
increases biogas
production and
reduces sludge.



3. FERMENTATION (Fermentation Booster)



Boosts fermentation
efficiency, increases
alcohol yield & reduces
fermentation time.
Lower chemical
usage.



4. BIOGAS (Biogas Enhancement)



Increases biogas
yield, improves
gas quality and
ensures stable
performance.



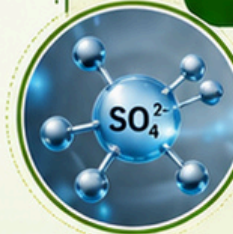
5. COMPOSTING (Organic Waste to Compost)



Accelerates organic
waste decomposition
and converts it into
nutrient rich
compost.



6. SULPHATE REDUCTION (Sulphate Control)



Reduces sulphate
levels, prevents
corrosion & scaling,
improves overall
system efficiency.



KEY BENEFITS



Higher Efficiency
Better process
performance &
resource recovery.



Eco Friendly
Natural solution for
cleaner environment
& sustainability.



Cost Effective
Reduces operational
costs & chemical
consumption.



Compliance
Helps meet pollution
control norms
easily.



Reliable & Safe
Proven technology
backed by research
& experience.



**NANOZYME – Nature's Microbial Power
for Cleaner Water, Higher Yield & Sustainable Future.**

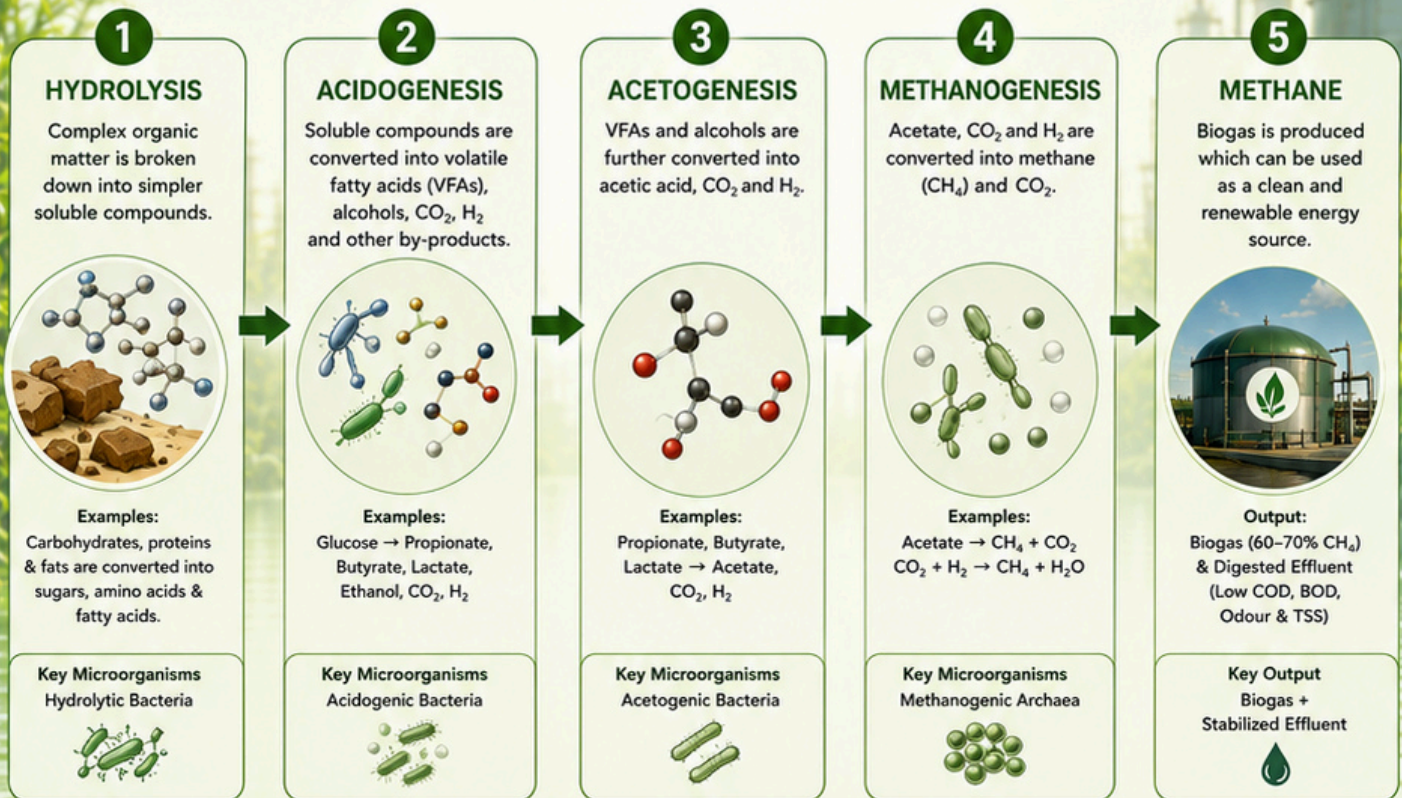




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ANAEROBIC DIGESTION

A natural biological process where microorganisms break down organic matter in the absence of oxygen to produce biogas and stabilized effluent.



Harness Nature. Generate Energy. Protect Environment.
Nanozyme Technology for Efficient Anaerobic Digestion.



FERMENTATION BOOSTER

Advanced biological support for faster, cleaner
and more efficient fermentation.



INCREASE ALCOHOL YIELD

Improves conversion
efficiency.



FASTER FERMENTATION

Reduces fermentation
time.



LOWER CHEMICAL USAGE

Supports a more
efficient biological
process.



ELIMINATE UREA & DAP

Minimizes dependence
on conventional
additives.



KEY ADVANTAGES



Improved
Process Efficiency



Cleaner
Operation



Cost
Optimization



Sustainable
Performance



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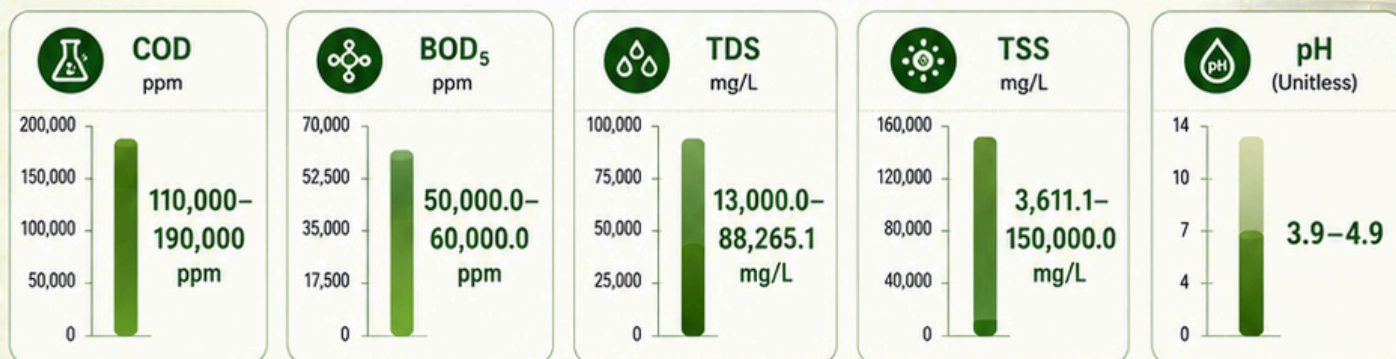


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DISTILLERY EFFLUENT

Typical Characteristics of Raw Distillery Effluent

Values may vary based on plant and season.



DISTILLERY UNIT – KEY PARAMETERS

Parameter	Distillery Unit
Temperature (°C)	46.3–56.3
pH	3.9–4.9
Electric conductivity (μS/cm)	3910.0–50,500.0
BOD ₅	50,000.0–60,000.0 ppm
COD	110,000–190,000 ppm
Chloride	6213.6–7475.7
Total hardness	3100.3–4477.2
Calcium	2676.5–3389.8
Magnesium	816.3–1828.1
Total solids	91,876.9–150,300.9
Total dissolved solids	13,000.0–88,265.1
Total suspended solids	3611.1–150,000.0
Nitrates	2.4–32.9



ADDITIONAL CONSTITUENTS FROM SHARED DATA

Parameter	Distillery Unit
Organic-N	75.2–400.7
Ammonia-N	10.9–18.1
Total nitrogen	85.8–1355.3
Phosphate	1.2–27.6
Sulphate	803.0–6050.5
Oil & greases	30.3–202.1



Values are typical of raw distillery effluent from molasses-based distilleries and may vary based on plant design, raw material quality and seasonal conditions.



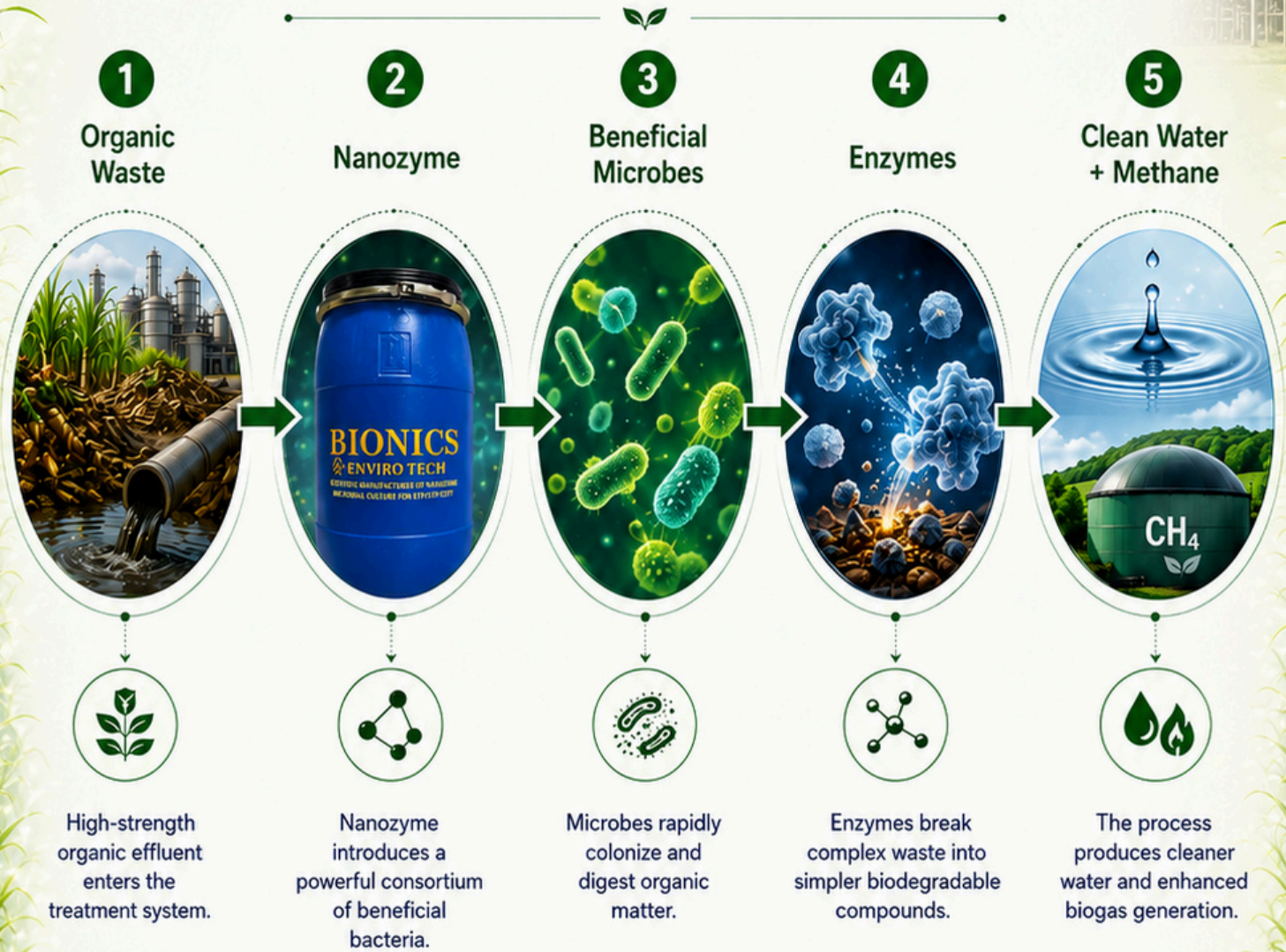
TYPICAL EFFLUENT CHARACTERISTICS FROM DISTILLERY UNITS

Parameter	Raw Distillery Effluent	Anaerobically Treated Effluent
pH	3.0–4.5	7.5–8.0
BOD ₅	50,000–60,000	8,000–10,000
COD	110,000–190,000	45,000–52,000
Total solids	110,000–190,000	70,000–75,000
Total volatile solids	80,000–120,000	68,000–70,000
Total suspended solids	13,000–15,000	38,000–42,000
Total dissolved solids	90,000–150,000	30,000–32,000
Chloride	8000–8500	7000–9000
Phenols	8000–10,000	7000–8000
Sulphate	7500–9000	3000–5000
Phosphate	2500–2700	1500–1700
Total nitrogen	5000–7000	4000–4200



HOW NANOZYME WORKS

Organic Waste → Nanozyme → Beneficial Microbes → Enzymes → Clean Water + Methane



Safe & Non-Toxic
Biological & eco-safe solution



High Efficiency
Delivers consistent and measurable performance



Cost Effective
Reduces O&M cost and improves process economics



Sustainable Solution
Supports circular economy and green industry

KEY OUTCOMES



COD Reduction
Significant reduction in COD levels.



BOD Reduction
Substantial reduction in BOD levels.



Biogas Enhancement
Increased methane yield and biogas production.



Eco-Friendly Treatment
Environment-friendly, sustainable and compliant solution.

MERITS OF NANOZYME

Key Benefits of Nanozyme Bioculture

1



COD REDUCTION

Reduces chemical oxygen demand for cleaner effluent.

2



BOD REDUCTION

Improves wastewater quality by lowering biological load.

3



ODOUR REMOVAL

Minimizes foul smell and improves plant environment.

4



COLOUR REDUCTION

Helps reduce colour and improves water clarity.

5



ZERO SLUDGE

Supports low or zero excess sludge generation.

6



ECO FRIENDLY

Biological, safe and sustainable treatment solution.



OUR PRODUCTS

Advanced Nanozyme Bioculture Solutions

SUGAR ETP PRODUCTS (BIONICS MAKE)



- NANO - SUG - ETP - 1000
- NANO - SUG - ANA - 2000



Key Merits

- ✓ COD & BOD Reduction (Min. 95% - Max. 100%)
- ✓ Colour Reduction (98-100%)
- ✓ TSS Reduction (97-100%)
- ✓ Odour Reduction (100%)
- ✓ Increase Dissolved Oxygen (4-6 Ppm)
- ✓ Reduce Blower Usage in Aeration
- ✓ Save up to 50% Power Consumption

FERMENTATION PRODUCTS (BIONICS MAKE)



- BIONICS - NANO - FERM CULTURE/
BOOSTER - 1000
[BIONICS MAKE]



Key Merits

- ✓ Increase Overall Yield (Alcohol %)
- ✓ Increase Production & Plant Productivity
- ✓ Reduce Contamination
- ✓ Reduce Overall Operation Costs
- ✓ Operate in Optimum pH (2 - 12 PH)
- ✓ Eliminate Urea & DAP Completely
- ✓ Efficient & Easy Handling of Fermentation System

DISTILLERY ETP PRODUCTS (BIONICS MAKE)



- NANO - DIST - ETP - 1000
- NANO - DIST - ANA - 2000
[BIONICS MAKE]



Key Merits

- ✓ COD & BOD Reduction (Min. 95%)
- ✓ Colour Reduction (100%)
- ✓ TSS Zero Sludge Reduction
- ✓ Odour Reduction (100%)
- ✓ Increase in Biogas
- ✓ Increase Methanogenesis Activities

COMPOSTING PRODUCTS (BIONICS MAKE)



- BIONICS - NANO - COMP - 1000
[BIONICS MAKE]



Key Merits

- ✓ Odour Removal (100%)
- ✓ Increase NPK Ratio (up to 8:7:9)
- ✓ C:N Ratio Reduction (< 12:1)
- ✓ Convert Press Mud to Valuable Compost
- ✓ Activated through Microbial Culture

OTHER PRODUCT APPLICATIONS



Aeration Tank
ETP / CETP



Anaerobic Culture



Sewage Treatment
Plant (STP)



Food & Beverage
Industries

ANAEROBIC CULTURE

- ✓ NANOZYME BET-ANA-9001
- ✓ NANOZYME BET-ANA-9002
- ✓ NANOZYME BET-ANA-9003

SEWAGE TREATMENT PLANTS (STP/CSTP)

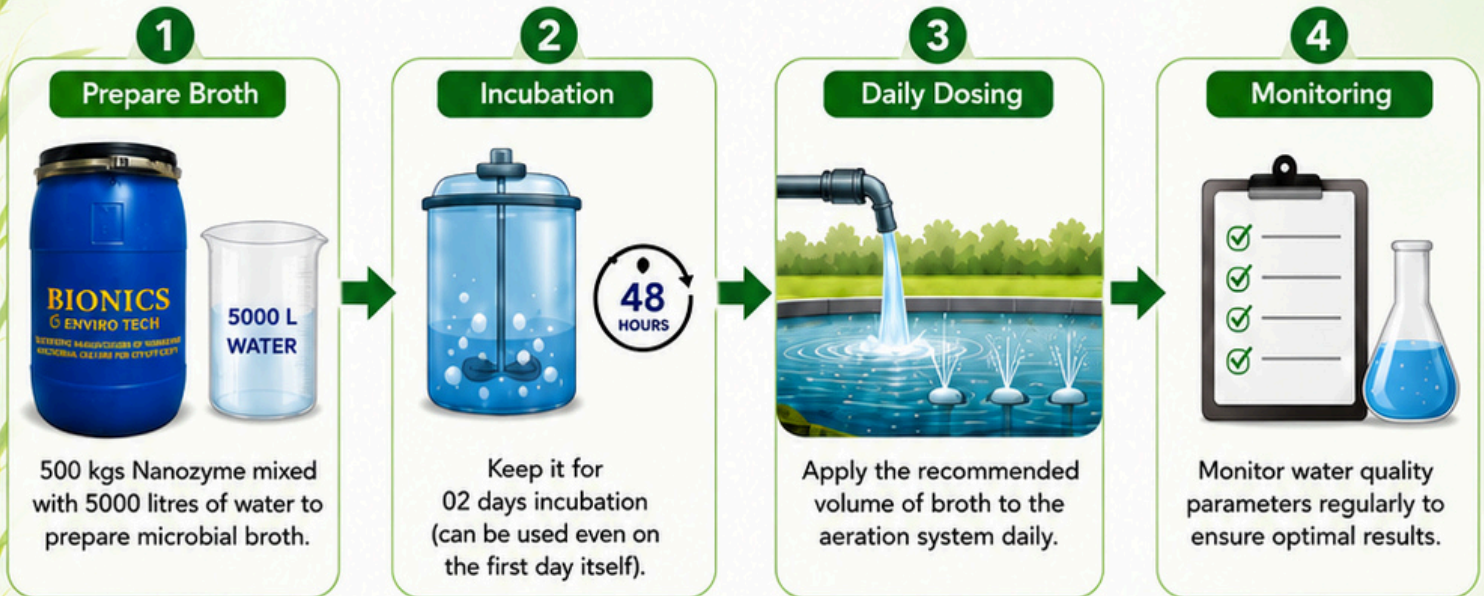
- ✓ NANOZYME BET-STP-9011
- ✓ NANOZYME BET-STP-9012
- ✓ NANOZYME BET-STP-9013

AERATION TANK EFFLUENT TREATMENT PLANT (ETP/CETP)

PRODUCT CODE	TYPICAL COD RANGE
NANOZYME -BET-ETP-7001	< 500 COD
NANOZYME -BET-ETP-7002	500-2000 COD
NANOZYME -BET-ETP-7003	> 2000 COD

IMPLEMENTATION

Nanozyme Broth Preparation, Dosing & Monitoring Process



Recommended dosage is **500 kgs** of Nanozyme per month.



First Dosage: 500 kgs of **BIONICS NANO-DIST-ANA-2000** is mixed with **5000 litres** of water for microbial broth.



Keep it for **02 days incubation** (can be used even on the first day itself).



The recommended dosage is for **30 days**.



The same procedure is to be followed in **all seasons**.



500 kgs
Nanozyme



5000 litres
water



microbial broth
for **30 days**
application

From 5000 litres of prepared broth – Volume of Nanozyme Application to Aeration

Dosage	Day of Dosage	Application Volume
 1st Dosage	1st to 10 days	150 Litres / Day
 2nd Dosage	11th to 20th days	150 Litres / Day
 3rd Dosage	21st to 30th days	150 Litres / Day

AWARDS & RECOGNITIONS



**Indian Council for
Agricultural Research Award**

2001



**University Grant Commission
National Eligibility Test Award**

June 2003 & Dec 2003



**Agricultural Scientist
Recruitment Board
National Eligibility Test Award**



Times of India

May 28, 2009



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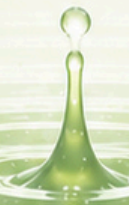
TRANSFORMING WASTE INTO CLEAN WATER



**15
YEARS**

OF EXPERIENCE IN
WASTE WATER TREATMENT

15,000+
**SATISFIED
CUSTOMERS**
IN ALL OVER INDIA



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<https://www.youtube.com/@bioculturebybionics>

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