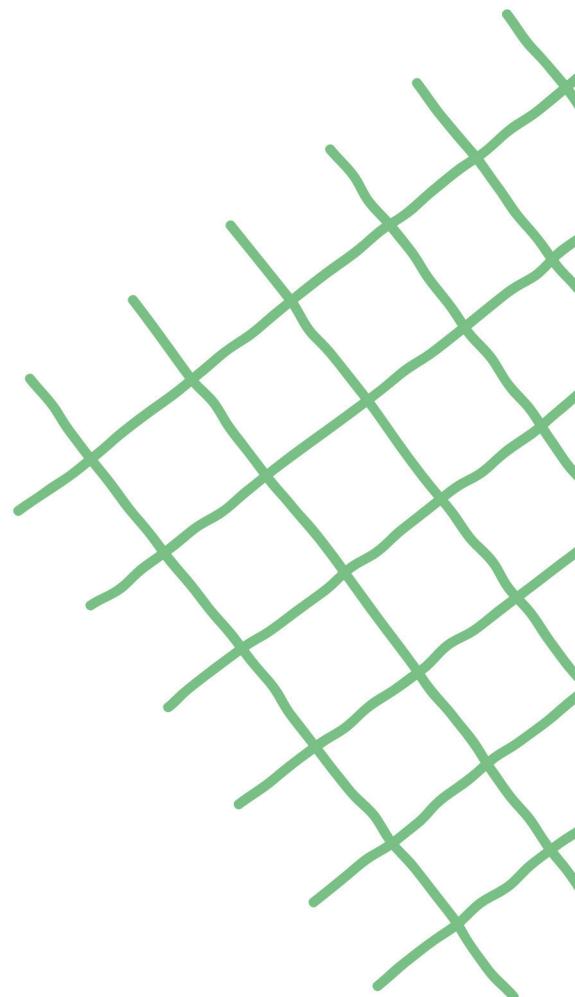




Microbial Compost

A Pilot Case Study

AI TECH & TOUCH SOLUTION



A Catalyst that transforms
Biodegradable waste into compost, just in 21 days!

Opportunity for Ecolly Deployment

Urban Waste Management Snapshot

- **Urban Local Bodies (ULBs):**
 - Municipal Corporations
 - Municipalities
 - Town Panchayats
- **Total Municipal Solid Waste Generated:** Varies by region; typically **20-50 tons/day per municipality** for medium-sized towns.
- **Waste Segregation Compliance (National Avg.):** ~70–80% in urban clusters
- **Key Challenge Areas:**
 - Inadequate processing infrastructure
 - Low composting capacity in small & medium towns
 - Landfill saturation in tier-2 and peri-urban zones

Ecolly's Fit for Urban & Rural Waste Management

- **Microbial-X compost** to accelerate composting at municipal and panchayat levels
- **IoT dashboards (OdoMon)** to track gas emissions, moisture, and treatment status in real-time
- **QR-based household waste tracking** to improve segregation compliance
- **Digital awareness campaigns** in regional languages for behavioral change
- **Plastic-to-brick recycling models** for civic infrastructure such as schools, roads, and parking spaces

Targeted Outcomes:

- ✓ **90%+ source-level segregation** enabled through awareness and engagement
- ♻️ **40–50% of total organic waste converted into high-quality compost,** accelerated by Ecolly's Microbial X Compost
- 📦 **30% of recyclable waste processed into eco-bricks and usable materials**
- 🌿 **Compost value chain creation** to support local agriculture, nurseries, and urban greening initiatives
- 🏙️ **Alignment with Smart City and Swachh Bharat Mission goals** for cleaner, data-driven urban environments

The Need for Smart Waste Management

The Growing Waste Management Challenge

With increasing urbanization, the volume of municipal solid waste (MSW) has surged, leading to overburdened landfills, environmental degradation, and public health concerns. Conventional waste disposal methods such as landfilling and incineration release harmful pollutants, accelerating climate change and posing significant risks to ecosystems.

The Need for a Smarter, Sustainable Solution

The **Ecolly waste management system** leverages **Artificial Intelligence (AI)**, **Internet of Things (IoT)**, and **Microbial Biotechnology** to create an **efficient, data-driven, and eco-friendly** waste processing model. Through this pilot project, Ecolly has demonstrated how technology can transform municipal waste into **valuable resources like compost and recycled materials**, significantly reducing landfill dependency.

Objectives of the Pilot Project

This pilot aimed to:

1. **Digitize waste collection** using QR codes and mobile tracking.
2. **Implement real-time waste monitoring** with AI-powered IoT sensors.
3. **Accelerate organic waste decomposition** using **Ecolly's MicrobialX Compost**.
4. **Reduce landfill volume** by segregating recyclable and inert waste.
5. **Develop a sustainable waste processing model** adaptable to urban and rural areas.



Image: Before & After Dump Site Cleanup

Ecolly's Smart Waste Management Solution

Step 1: Intelligent Waste Collection

- **QR Code-Enabled Tracking:** Each household/business receives a unique QR code to monitor waste disposal habits.
- **Mobile App for Waste Collectors:** Enables real-time tracking of door-to-door collection, ensuring efficiency and accountability.
- **Data-Driven Insights:** The system provides analytics on waste segregation patterns to optimize recycling and composting efforts.

Step 2: Waste Segregation & Processing

Ecolly classifies waste into three primary categories:

1. **Biodegradable Waste** - Converted into nutrient-rich compost through the **MicrobialX Compost**.
2. **Recyclable Waste** - Plastics, metals, and e-waste are sent to **recycling plants**, where:
 - Plastics are repurposed into bricks for public infrastructure.
 - Metal waste is recovered and processed for industrial use.
3. **Inert Waste** - Used for **road construction, landfilling**, and other **non-polluting applications**.

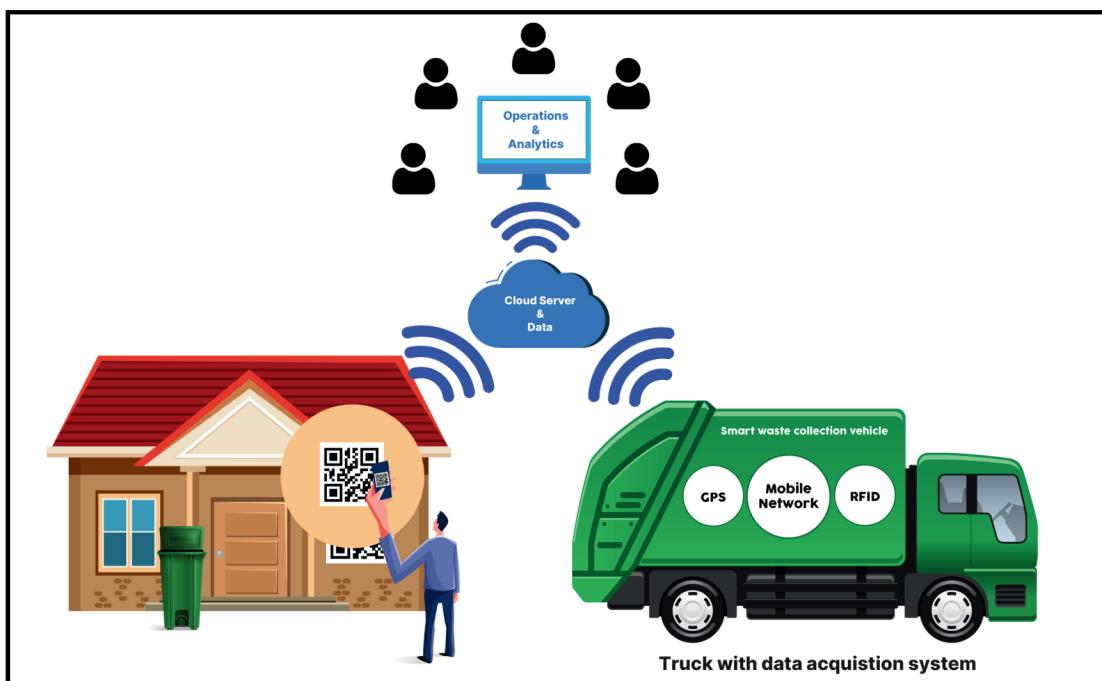


Image: QR Code Waste Tracking & Smart Bins

AI & IoT-Driven Waste Monitoring

OdoMon AI Dashboard – Smart Waste Analytics

Ecolly integrates **IoT-based environmental monitoring sensors** into its waste management model to **analyze key parameters in real time**:

- **Temperature & Humidity** - To optimize microbial decomposition conditions.
- **CO₂ & Methane (CH₄) Levels** - To track harmful emissions from waste breakdown.
- **Particulate Matter (PM 2.5 & PM 10)** - To assess the air quality around dump sites.

How OdoMon AI Dashboard Works

- **Real-time data collection** from IoT sensors at the waste site.
- **AI-driven analysis** recommends the exact quantity of MicrobialX compost required for optimal decomposition.
- **Automated alerts** notify field teams about gas emissions, waste segregation efficiency, and composting progress.

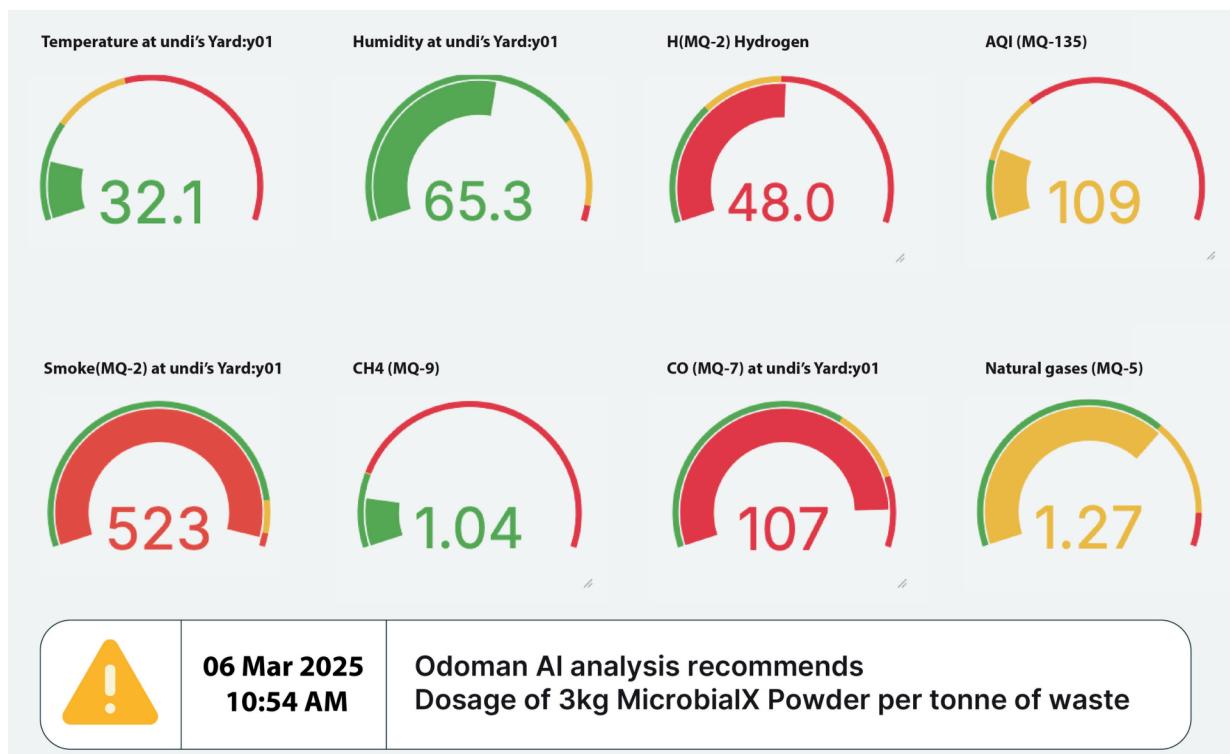


Image: OdoMon Dashboard Interface & Real-Time Readings

Odomon AI Dashboard



Image: OdoMon AI Dashboard – Smart Waste Analytics

- ✓ **Real-Time Gas Detection** – Tracks NH₃, CH₄, CO₂, H₂S, SO₂.
- ✓ **AI-Powered Insights** – Predicts trends and optimizes treatment.
- ✓ **Live Data Visualization** – Displays air quality & decomposition progress.
- ✓ **Automated Alerts** – Triggers when gas levels exceed limits.
- ✓ **Dosage Recommendation** – Suggests exact Ecolly Microbial-X required.

💡 Smarter, faster, and more efficient waste management! 🚀

MicrobialX Compost – Fast & Eco-Friendly Decomposition

What is MicrobialX Compost?

MicrobialX compost is a **bio-based microbial solution** designed to **accelerate the natural decomposition process** of organic waste, transforming it into compost within **just 21 days**.

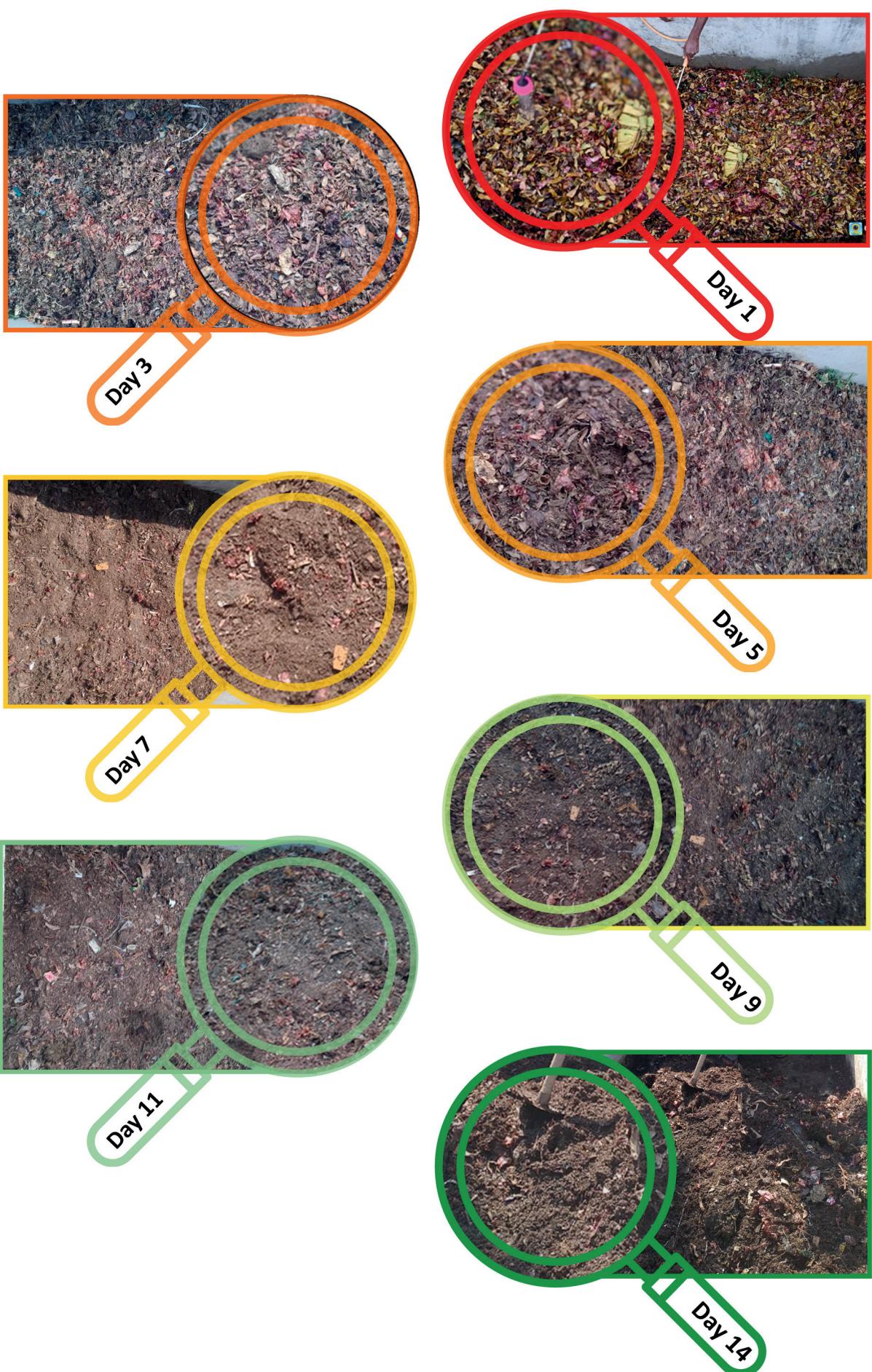
How OdoMon AI Dashboard Works

- Contains **beneficial bacteria & enzymes** that break down organic matter efficiently.
- Enhances soil fertility by enriching compost with nitrogen (N), phosphorus (P), and potassium (K).
- Reduces odor & greenhouse gas emissions compared to conventional composting.
- Safe for the environment - free from synthetic chemicals and pollutants.

Comparison with Traditional Composting

Feature	MicrobialX Composting	Traditional Composting
Decomposition Time	21 Days	90+ Days
Emission Control	Reduces CO ₂ & CH ₄	High emissions
Odor Control	Eliminates foul smell	Strong, unpleasant odor
Environmental Impact	Sustainable & eco-friendly	High pollution risk

Composting Process



Citizen Engagement & Digital Awareness

Driving Participation through Smart Communication

To ensure community-level compliance, Ecolly uses localized digital tools and reward systems to build awareness and behavior change.

Key Highlights:

- **Social Media Campaigns (Regional Language + English)** on segregation, composting, and eco-friendly habits
- **WhatsApp Alerts** for waste pickup schedules and citizen tips
- **QR-Based Green Household Badges** to reward compliant homes
- **Public Info Boards** showing live compost, air quality, and collection updates

Key Highlights:

Boosts awareness, improves source segregation, and builds public trust.

Ecolly | Ward 14 Update

✉️ Hello! This is your daily waste collection alert.

✓ Our team will collect household waste between 7:00 AM and 9:00 AM today.

💡 Please place your bin outside before 7:00 AM.

♻️ Reminder: Segregate your waste before pickup:

● Wet Waste – Food scraps, vegetable peels, garden waste

● Dry Waste – Plastics, paper, wrappers, glass, metal

❤️ Non-segregated waste will not be picked up. Let's keep our area clean together!

🙏 Thank you for being a responsible citizen.

— Ecolly Smart Waste Team



Pilot Project Implementation & Results

Project Overview

- **Location:** Undi, West Godavari Dist, Andhra Pradesh
- **Duration:** 06 March 2025 – 28 March 2025
- **Dump Site Area:** 100 square yards
- **Initial Waste Volume:** 1 Tonne

Execution Steps:

1. **Site Selection & Waste Analysis:** Surveyed the site and recorded the waste composition & volume.
2. **Smart Waste Segregation:** QR code tracking and manual sorting implemented.
3. **AI-Driven Waste Processing:** OdoMon sensors deployed to track emissions and recommend composting strategies.
4. **MicrobialX Compost Application:** Sprayed on biodegradable waste to accelerate composting.
5. **Final Compost Evaluation:** Lab-tested for nutrient content & quality assurance.

Key Outcomes

- ✓ **70% reduction in landfill waste**
- ✓ **82.5% faster composting** using microbial biotechnology.
- ✓ **85% improvement in air quality** through reduced methane emissions.
- ✓ **Generated 35% of organic compost per tonne of waste**, benefiting local farmers.



Recognitions

Government & Industry Recognition

The Ecolly pilot project has received **Official appreciation** from local authorities for introducing an **AI-driven, sustainable waste management model**.

Date: 2 April 2025

To,
Mani Raju,
Merusphere Pvt Ltd
Plot No:-88, Guttala_Begumpet,
Kavuri Hills, Jubilee Hills,
Hyderabad, Telangana 500081

Subject: Appreciation for the Success of Ecolly in Waste Decomposition

Dear Mani Raju,

On behalf of Undi Panchayat, Undi Mandal, West Godavari, Andhra Pradesh, we extend our heartfelt appreciation for the outstanding performance of your product, **Ecolly**, in addressing waste decomposition challenges at our local dump yards.

Ecolly was tested rigorously in real-world conditions at the dump yards of ChinamiramPanchayat, where waste accumulation led to severe issues such as **foul odor, mosquito infestation, and slow decomposition of organic waste**. We are pleased to inform you that your product has successfully tackled these challenges, yielding remarkable improvements in our waste management process.

- Effective Decomposition:** The waste treated with Ecolly decomposed completely within 21 days, significantly reducing the usual decomposition period.
- Odor Reduction:** The application of Ecolly notably reduced the **foul smell**, making the surroundings more habitable for local residents.
- Mosquito & Pest Control:** The decomposition process prevented the breeding of mosquitoes and other pests, addressing a major health hazard.
- Eco-Friendly Output:** The final decomposed material has proven to be **rich in nutrients and highly beneficial for horticulture**, making it an excellent soil enhancer for trees and plants.

Product Features that Contributed to Success:

- Advanced Microbial Formulation:** Ecolly's unique blend of microbes accelerates waste decomposition efficiently.
- Odor-Neutralizing Properties:** Helps in breaking down organic matter while eliminating unpleasant smells.
- Non-Toxic & Eco-Friendly:** Safe for the environment, soil, and groundwater.
- Pest Deterrence:** Prevents the attraction and breeding of flies and mosquitoes.
- Versatile Application:** Effective for municipal waste, agricultural residues, and food waste.

Your innovative solution has brought about a **significant improvement** in our waste management strategy, and we are truly satisfied with the results. We commend your team's dedication and commitment to sustainability.

We highly recommend Ecolly for municipalities and organizations looking for an efficient and eco-friendly waste management solution.

We look forward to continuing our collaboration and exploring further applications of Ecolly for a cleaner, greener future. Once again, we sincerely appreciate your efforts in making a positive impact on our community.

With gratitude,


Secretary
Chinamiram Panchayat, UNDI
Uindi Panchayat
Uindi Mandal, West Godavari, Andhra Pradesh



Compost Quality Test Report

The compost produced from the **Ecolly MicrobialX Compost** has been rigorously tested to ensure its quality, nutrient content, and environmental safety. This report highlights key parameters such as organic matter composition, **nitrogen (N)**, **phosphorus (P)**, **potassium (K) levels**, **pH balance**, and **moisture content**. The analysis confirms that the compost is rich in essential nutrients, making it an excellent alternative to chemical fertilizers. The results demonstrate the effectiveness of our microbial technology in accelerating decomposition while maintaining soil health.



GOVERNMENT OF ANDHRA PRADESH
Department of Fisheries
Aqua Lab Report
Kaikaluru (Govt. Lab) - Eluru



Farmer : Merusphere Pvt Ltd		Farmer Address		Sample Address	
Registration ID	AQLABSER5570693	State	Telangana	Sample State	Telangana
Date & Time	2025-03-29 16:07:37	District	Plot No:-88, Guttala_Begumpet, Kavuri Hills	District	Plot No:-88, Guttala_Begumpet, Kavuri Hills
Test Started Date	2025-03-29 20:41:02	Mandal	Jubilee Hills,	Mandal	Jubilee Hills,Hyderabad, Telangana 500081
Report ID	EL/GOV/GEN/2025/ 26949	Secretariate name & code	NA-NA	Secretariate name & code	NA-NA
Mobile No	9063790513	Village	Jubilee Hills,	Village	Jubilee Hills,Hyderabad, Telangana 500081
Email Id		Sample Source	Others		

Soil analysis

Sample	Service Type	Service Sub Type	Units	Optimum Levels	Test Power Components	Results	Test Method
Soil - SMSL039890	Soil Parameters	Soil available Phosphates	mg/100gms of soil	6-12	NA	8	
Soil - SMSL039890	Soil Parameters	Soil available Nitrogen	mg/100gms of soil	50-75	NA	58	
Soil - SMSL039890	Soil Parameters	Soil organic carbon	percent	1.5-2.5%	NA	1.8	
Soil - SMSL039890	Soil Parameters	Soil pH		7.5 to 8.5	NA	6.8	

Work Orders & Expansion Plan

From,
The Panchayat Secretary,
Velivarru Panchayat, Undi Mandal,
West Godavari District, AP, 534199

To,
M/s. MeruSphere Private Limited,
G2, Satyam Prince, Satyam Heights
Rajiv Gandhi Nagar, Bachupalli,
Hyderabad, Telangana, India – 500033

Lr. No. 20250304-A2, Date 04-03-2025

Subject: Approval for Pilot Project and Allocation of Waste Management Site

Dear Mani Raju,

We are pleased to inform you that the Undi Panchayat has reviewed and approved the proposal for the Ecolly Smart Waste Management Pilot Project in our jurisdiction. Understanding the importance of sustainable waste management and the benefits your project offers, we are granting permission to proceed with the pilot implementation.

For this initiative, we have allocated a site located at Undi, covering an area of 100 square yards, designated for waste segregation, processing, and composting activities. The pilot project will involve waste collection, AI-driven monitoring, microbial composting, and recycling initiatives to improve environmental sustainability and public health in our region.

We extend our full support to ensure smooth execution and collaboration with local authorities and stakeholders. We look forward to witnessing the positive impact of this project and exploring further opportunities for large-scale implementation.

Please proceed with the necessary preparations as per the agreed terms. Kindly coordinate with our designated officials for further procedural formalities.

[Signature]
Yours sincerely,
Secretary
The Panchayat Secretary,
Grama Panchayati, UNDI
Undi Panchayat, Undi Mandal,
West Godavari District, AP, 534199



- Deploy AI-powered waste management solutions in additional municipalities and urban zones.
- Enhance OdoMon AI dashboard for predictive waste analysis.
- Scale up recycling initiatives to convert more plastic waste into usable products.
- Partner with local governments and industries to create a circular waste economy.

Conclusion

🚀 Ecolly envisions a future where waste is no longer a problem but a resource.



Microbial Compost



scan for soft copy



MeruSphere | 1800 889 6608

contact@merusphere.com | www.merusphere.com