



कृषि एवं किसान
कल्याण विभाग
MINISTRY OF
AGRICULTURE AND
FARMERS WELFARE



NATIONAL BANK FOR
AGRICULTURE AND RURAL
DEVELOPMENT

Powered by
I2S

AGRISURE GREENATHON

TEAM NAME : FARM FANATICS

TEAM LEADER : RACHITA K

TITLE : SUSTAINABLE ANTI-MICROBIAL PACKAGING FOR PROLONGED MEAT FRESHNESS

TEAM MEMBERS: Preethi Vihashini S
Nandhini A
Mukillan S

PROBLEM STATEMENT

Design and develop a sustainable, biodegradable, and cost-effective packaging material using rice husk, turmeric leaves, and peanuts shell waste, which can replace traditional plastic packaging materials and reduce the environmental impact and also acts as an additional income for the farmers



SUSTAINABLE ANTI-MICROBIAL PACKAGING FOR PROLONGED MEAT FRESHNESS

- The idea focuses on maximizing the potential of agricultural waste for sustainable packaging.
- Each year, millions of tons of rice husk and groundnut shells are discarded globally post-harvest.
- By repurposing these materials alongside turmeric leaves, known for their natural antimicrobial properties, we create biodegradable packaging that not only reduces environmental impact but also acts as an additional income to the farmers.



PLASTIC PACKAGING Vs ECO-SHIELD PACKAGING

- Traditional packaging materials like plastics pose environmental threats due to their non-biodegradable nature and pollution impact.
- Our innovative approach integrates biodegradable **rice husk**, **groundnut shells**, and **antimicrobial turmeric leaves** which are considered to be agri-waste
- This not only ensures **eco-friendliness** but also enhances **freshness** and safety standards for meat packaging, aligning sustainability with practical benefits.



The **USP** for the product includes, that the turmeric leaves also contains curcumin, a bioactive component which helps in prolonged shelf-life of meat along with anti-microbial activity.



IMPORTANT FEATURES

- ✓ **Sustainability:** Utilizing agricultural by-products and natural materials promotes sustainability and reduces waste.
- ✓ **Biodegradability:** The materials decompose naturally, reducing environmental impact compared to non-biodegradable plastics.
- ✓ **Natural Insulation:** Rice husk and groundnut shells provide insulation, helping to maintain the freshness of meat products.
- ✓ **Turmeric leaves utilization:** Turmeric leaves are often burnt after turmeric harvest. The properties of turmeric leaves are numerous. They contain anti-microbial properties which are often under-utilized. So utilizing turmeric leaves are cost efficient and useful.

FLOW DIAGRAM



Material collection (Agri-waste)



Cleaning and treatment



Grinding and composite formation



Binding using natural binders (starch)



Moulding and drying



Packaging and distribution



Turmeric leaves
contains anti-
microbial properties

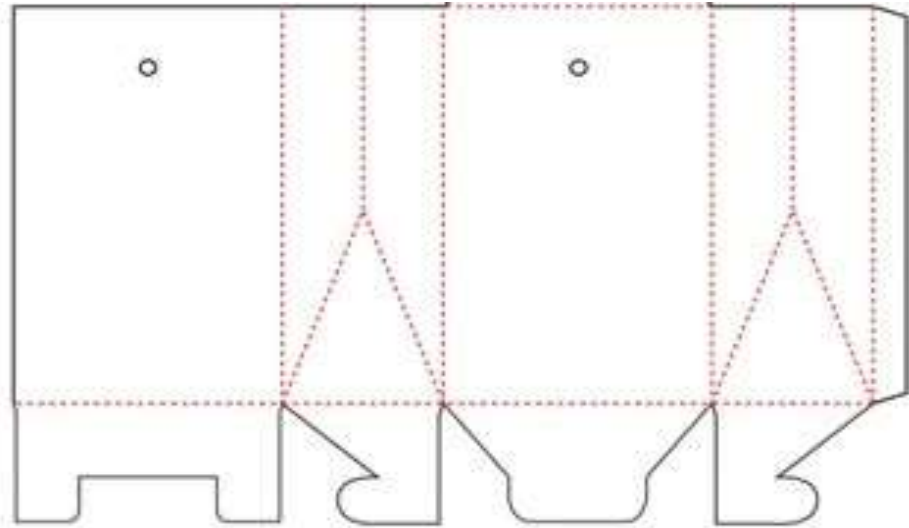
Groundnut shells
has insulating
properties



Rice husk has
exceptional binding
properties

Together, they
make a Eco-shield
packaging





TECHNOLOGIES TO BE USED

- Drying technology-Air Drying
- Compression molding



CONCLUSION

In conclusion, repurposing rice husk, turmeric leaves, and groundnut shells into biodegradable packaging offers a sustainable alternative to traditional plastics. This solution reduces environmental impact, curtails waste, and provides additional income for farmers, aligning with the growing demand for eco-friendly packaging in e-commerce and retail industries.





कृषि एवं किसान
कल्याण मंत्रालय
MINISTRY OF
AGRICULTURE AND
FARMERS WELFARE



NATIONAL BANK FOR
AGRICULTURE AND RURAL
DEVELOPMENT

Powered by



AGRISURE GREENATHON



Win Cash Prizes Worth

₹6,00,000/-

THANK YOU