

DEVELOPMENT OF ECO-FRIENDLY BIODEGRADABLE PLANT POTS AS AN ALTERNATIVE TO PLASTIC POTS

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Introduction:

Plastic plant pots are widely used in agriculture and gardening due to their low cost and easy availability. However, plastic materials are non-biodegradable and cause serious environmental problems such as soil pollution, water contamination, and ecological imbalance. Disposal of plastic pots is difficult and leads to long-term environmental damage.

To overcome these issues, there is a need for eco-friendly alternatives. Biodegradable plant pots made from cow dung and agricultural waste provide a sustainable solution. Cow dung is a natural, low-cost material with binding properties and biodegradability.

Previous studies have shown that biodegradable pots made from cattle manure and natural binders exhibit good strength, water retention, and degradation properties.

This project focuses on developing biodegradable plant pots using cow dung and natural binders as an alternative to plastic pots. The study also includes field visits to local biodegradable pot-making units in Bidar. The prepared pots will be evaluated based on strength, durability, plant growth, and degradation behavior.

Objectives:

1. To prepare low-cost biodegradable plant pots using cow dung and natural binders.
2. To study the physical strength and durability of biodegradable pots.
3. To evaluate plant growth performance in biodegradable pots.
4. To compare biodegradable pots with conventional plastic pots.
5. To study the practices followed by local small-scale biodegradable pot manufacturing units in Bidar through field visits.

Methodology:

1. The project will begin with a literature survey on biodegradable materials and eco-friendly alternatives. Field visits will be conducted to local biodegradable pot-making units in Bidar to understand preparation methods.

2. Cow dung will be collected, dried, and powdered. Agricultural waste such as sawdust or paper pulp will be prepared. Natural binders like starch will be used.
3. The materials will be mixed in suitable proportions to form a uniform mixture. The mixture will be moulded into pot shapes and dried under sunlight.
4. The prepared pots will be tested for strength, durability, water absorption, and resistance to cracking. Plant growth experiments will be conducted using biodegradable pots and plastic pots for comparison. Parameters such as germination rate, plant height, and leaf number will be recorded. Degradation of pots will be observed by placing them in soil and recording changes over time.

Result and Conclusion:

The project is expected to successfully develop biodegradable plant pots using cow dung. These pots will have sufficient strength and durability for practical use.

Plants grown in biodegradable pots are expected to show better growth due to improved aeration and natural nutrient availability. The pots will decompose naturally in soil, improving soil fertility.

The study concludes that biodegradable pots are an eco-friendly and cost-effective alternative to plastic pots.

References:

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2. [2] A. D. Kamble, P. K. Badhe, O. D. Gade, R. B. Kale, S. U. Jagdale, D. V. Narale and S. S. Gele, "Development of biodegradable cow dung–agricultural waste composites for sustainable construction and eco-friendly applications," *International Journal of Scientific Research in Engineering and Management*, vol. 9, no. 10, 2025.
3. [3] Relevant literature on biodegradable materials and eco-friendly plant pots.

Future Scope:

The future scope of this project includes:

1. Large-scale production and commercialization of biodegradable pots.
2. Improvement in strength and water resistance using advanced binders.
3. Application in nurseries, agriculture, and urban gardening.