Development of Pineapple Leaf Based Biodegradable Straw and Paper Food Packaging Materials (Tea, Coke, Ice Cream Cups & Popcorn Box)

Salient features

- Focuses on biodegradable food packaging using pineapple leaves and banana stems
- Utilizes abundant agricultural wastes as raw materials
- Involves alkaline treatment, washing, mixing, drying and hot compression molding
- Process parameters optimized for efficient conversion
- Products like cups, straws, boxes developed to replace plastics
- Technology transferred to companies for commercialization

Advantages

- ✓ Provides eco-friendly solution to single-use plastics
- ✓ Addresses agricultural waste disposal and burning issues
- ✓ High cellulose content allows conversion to useful materials
- ✓ Biodegradable properties match packaging requirements
- ✓ Large scale production and business viability demonstrated
- ✓ Sustainable solution for both plastic pollution and agricultural waste

Process Technology / Product developed by

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More information	**Status of commercialization / Patent / Publications** ➢ One Patent has been filed from CSIR "**Process For The Production Of Biodegradable Products From Fiber Based Agro Residues"** ➢ Technology has transferred to Vazhakulam Agro and Fruit Processing Company Ltd, Kerala(Funding support received from RKVY scheme (Rs. 2.55Cr)) - Plant machinery fabrication is going on; shed construction has been completed - 1-ton pineapple leaf processing per day for biodegradable cutlery production. The commercial plant operations will commence in December. **Publications** ➢ Harikrishnan, M. P., Thampi, A., Lal, A. N., Warrier, A. S., Basil, M., & Anjineyulu Kothakota* (2023). Effect of chitosan-based bio coating on mechanical, structural and physical characteristics of microfiber-based paper packaging: An alternative to wood pulp/plastic packaging. International Journal of Biological Macromolecules, 126888. (IF:8.2). ➢ M. Basil, Anirudh M. K, A.M. Nandhu Lal, M.P. Harikrishnan, Partha Kundu, Anjineyulu Kothakota* (2023). Development and characterization of microfiber incorporated with industrial biopolymer composite based biodegradable cutlery: An alternative to single use plastic. Industrial Crops and Products (IF:6.449). INDCRO_117526 ➢ Vishnu, V., Harikrishnan, M. P., Warrier, A. S., Mahanti, N. K., Basil, M., Venkatesh, T. & Anjineyulu Kothakota* (2023). Design consideration and optimization of process parameters in fiber extraction unit via modelling studies. Journal of Food Process Engineering, e14298. (IF: 2.356).