DESIGN AND CONSTRUCTION OF AN INTEGRATED DOMESTIC ORGANIC WASTE SHREDDING AND COMPOSTING DEVICE

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SYNOPSIS—

The main objective of the works is to design and fabricate a device which can effectively prepare a compost so to reduce composting time and increase nutritional value ,maturity percentage.

There are few composting machines which are used at industrial levels which are gigantic and are not ideal to be kept at the home due to its enormous size and by the sheer space it occupies technologies owing to expensive, space as well as time-consuming and complicated.

Organic waste shredder was designed to shred all kinds of organic kitchen waste products. The organic waste shredded will be in small pieces to enable a higher rate of decomposition and hence a faster-composting process. This shredder can be operated with a DC motor.

In this system to enhance the process of aerobic decomposition we add bioculum as a catalyst and cocopeat as a nutritional value promoter . We add a calculated amount of bioculum and cocopeat . To ensure proper mixing of the compost and catalyst added we stirr the composte regularly with the attached manual stirrer , by doing this there is proper supply of of catalyst for the entire compost and there by enhances the decomposition time and reduces the composting cycle time .

There is also a temperature control module to maintain the optimum temperature required for the aerobic decomposition of the shredded organic matter .

We have tested this setup for 2 iterations and got the test results for the first compost which when compared to the NPK values of the domestic available compost showed comparatively good efficiency and enhanced nutritional values . Hence this compost was concluded to be efficient for agricultural purposes