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Karnataka State Council for Science and Technology
Indian Institute of Science Campus, Bangalore 560 012



A Project Report On

**“DESIGNING OF DIGESTER TO DIGEST MARIGOLD FLOWER
WASTE USING MICROBIAL CONSORTIUM AND THE
SUBSEQUENT ANALYSIS OF THE COMPOST AND LIQUID
FERTILIZER”**

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ABSTRACT

In India, flowers are used on a daily basis and the same flowers which come out of temples and markets as waste need effective disposal methods that does not harm the environment. These flowers still contain many essential components like anti-oxidants, lutein, flavonoids and some essential oils. Also, due to the generation of huge amount of these flowers as wastes, there is an urgent need of the hour to utilize this waste in order to generate value-added products and to develop revenue generation models for the poor. With this idea, in the current study, we have collected data on different types of flower waste generated in the markets, quantity wasted and based on this data when narrowed our search to Marigold flower (*Tagetes erecta*), the most commonly used flower in Indian temples. In this work we have also designed a shredder cum digester to shred the flowers into smaller pieces to enhance composting and also, this process causes no bad odour, is less time consuming, very easy to install and maintain, while saving on the cost. In future, we intend to make the digester even more cost effective by making it solar operated.

In order to utilize the flower, we needed to know the essential components present in it, even after one or two days of its use, we carried out different tests like essential oil extraction, test for aromatic compounds, dye-ability, and other potential uses.

We have come up with different products from marigold flower waste, such as, candles, incense sticks, natural dye, compost, liquid fertilizer, etc. And have also designed a shredder cum digester to shred the flowers into smaller pieces to enhance composting, prevent odour, is less time consuming, very easy to install and maintain, while saving on the cost. In future, we intend to make the digester even more cost effective by making it solar operated.

Key words: *Tagetes erecta*, Marigold flower, candles, dyes, incense sticks, compost, fertilizer & digester.