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Floral Waste Management & Opportunities

Rohit Kumar Sharma
International agribusiness management institute, Anand Agricultural university anand, Gujarat

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Introduction

Solid waste disposal is major problem in the world. Agricultural residues, temple waste, domestic waste, non-edible oil cakes waste are enriched with carbon content. Landfilling remediation approach is used for disposal of organic waste. Floral waste is one of the major concern. At present total production of flowers in India is 2785000 MT. Growing at a CAGR of floriculture market of 20.1% during 2019-2024. So there will be increase in growth of floral waste in future in India. Flowers have been an integral part of the Indian society and were cultivated for various purposes ranging from aesthetic to social and religious purposes, the commercial floriculture industry has been of recent origin

Current Status of Floral Waste:

A significant amount of flower consumption also takes place in industrial applications. This includes flavours, fragrances, textile industries, natural colour, and medicine etc. Large scale consumption of flowers is also carried out throughout the country during religious festivals. Every day around half a million people go to temples & offer flowers. It is estimated that 800 million tonnes of flowers are offered across the temples, mosques and gurudwaras etc. in the country. More than 8 million tonnes of flowers are dumped in the river every year, along with toxic pesticides and insecticides used to grow them. In India many places of worship generate20 tonnes of flower waste daily. Much of it ends up in landfills, where it does not decompose as it would naturally because it is mixed with other non- biodegradable waste and disposal of flowers in rivers, oceans, etc. leads to water pollution as well as affects the living organisms present in the water.

Opportunities

The management of floral wastes by solid state fermentation for the conversion into different value-added products are compost, biogas, organic acids, pigments, dyes, incense sticks etc. The floral waste is also a source for handmade paper production. These value-

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added products will have different applications; i.e., plant growth, electricity generation and it will have applications in various textile industries respectively. The waste can thus be converted into wealth. Application of floral wastes in bio sorption which will help in the treatment of waste waters and other industrial effluents. Ultimately the water and environmental pollution will also be reduced.

World Scenario of Floral Waste

The world floriculture production is growing at a rate of 10 % per year.In terms of production, the Netherlands, USA and Brazil are in the top. In 2016, the worlds' cities generated 2.01 billion tons annually of solid waste, amounting to a footprint of 0.74kg/person/day.According to sending the 100 million roses of a typical Valentine's Day produces 9,000 metric tons of CO2 emissions from field.

In India leading flower producing states in 2017-18 were Tamil Naidu, Andhra Pradesh, Karnataka, Madhya Pradesh, west Bengal, Chhattisgarh, and Gujarat.During ganeshotsav- In pune during Ganesh idol immersions there were 15 immersion spots on the river banks. The volunteer's team collect 23 tonnes of flowers and 3.5 tonnes dry waste on September 6 and 11 key days of the immersion. Employees of the Pune Municipal Corporation collected another 95 tonnes kg nirmalya In Mumbai 69 natural and 32 artificial immersion spots are present, from that they collected 685 tonnes of floral waste after the 11 day of fest

Floral waste reportedly accounts for 16% of the total river pollutant. More than 8 million tonnes of flowers are dumped in the rivers every year, along with toxic pesticides and insecticides used to grow them. River Ganga is the world's second most polluted river and eventually affects around 400 million people. Disposal of flowers in rivers, oceans, etc. leads to water pollution as well as affects the living organisms present in the waters.

The floral waste will be converted to different value-added products which will have different applications. Thus This is a close loop approach towards Environmental sustainability and waste management. In future there is large scope for this because every year the production of flowers will increase and rising number of temples, increasing tourism, rising number of pujas and rituals. If Campaigning Programmed on Waste Recycling are increase then awareness will increase so that we can save rivers & reduce pollution.