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ABSTRACT:

Agriculture sector accounts for nearly 14% of total GDP of India and nearly 65% of Indian population is directly or indirectly involved in this sector. As the rural labour is shifting towards non-agricultural work, the demand for agricultural is increasing which in resulting in increased wages that further results into high cost of production. This results in hike in market prices and lower profit margins.

Value addition is a method used to increase the economic value, improve employment and reduce post-harvest losses while also improving the living standards of poor farmers. Value addition includes the processing, packaging and application of multiple other methods. There are multiple flowers that have potential in value addition sector.

The floriculture sector includes flowers, attractive plants, and value-added products. Made from flowers and their other parts making higher economic value that make tons of profit in the market, multiple industries creating many employment opportunities. The process of acquiring genetic and processing modification while employing new approaches to increase in the economic value of floriculture products is called flower value creation.

Keywords: Floriculture, value-addition, employment, economic-value.

INTRODUCTION:

Rose (*Rosa spp.*) is a flower also known as the Queen of flowers, is mostly renowned for its fragrance and beauty. Rose belongs to Rosaceae family. It is considered s a symbol of love, beauty and fragrance. There are more than 300 species of rose and thousands of cultivars for this flower. These are mostly cultivated in countries like India, Bulgaria, Iran etc. Other than cut flowers and potted plants, the rose petals also contain high economic value due to its unique flavor and fragrance. Rose flowers have a very less shelf life which make it less profitable.

Floriculture industry is one of the most profitable agro-industries in India. There are multiple uses of flowers in everyday life due to its aesthetic value, varying colors, fragrance, texture, and diverse form ((Kumari S et al, 2018). But the short shelf life, the marketing and poor post-harvest management practices create hinderance in promoting the floricultural produce. The floriculture sector is not only limited to ornamental plants, flowers and their parts but also the products acquired through value addition. Along with improved quality, increased shelf life, and high profitability, the value addition also creates a great revenue in market and generate employment for poor people. There are multiple

techniques involved in value-addition like floral arrangement, dyeing, packaging, preservation etc.

Products of value addition of Rose:

1. **Rose water.**
   Rose water is an important product produced using rose petals.
   To make rose petals, 100kg of rose petals are boiled in 1000L of water and then distilled.
   It is used in food industries and also important for many religious rituals. It can also be applied as it is on face as a moisturizer.

2. **Rose perfume.**
   Rose oil is a product that is extracted by steam distillation of petals of the flowers.
   It is a similar product to rose water.
   It contains volatile oils from the rose flowers.

3. **Rose oil.**
   Rose oil extraction was firstly started in Persia in 17^{th} century and then spread worldwide. Among all the species of rose, Rosa damascena Mill contains the highest number of oils ranging between 0.032-0.049%. to extract 1kg of rose oil, nearly 3000-4000 kg rose petals are required.
   The most important compounds found in essential oil in rose are: β-citronellol, trans-geraniol, n-heneicosane, n-nonadecane, nonadecene, phenylethyl alcohol, linalool.
   Rose oil contains multiple medicinal properties due to which it is also used in ayurveda as well as pharmaceutical companies.
   Rose extract is also used in mouthwash, treatment of ulcers and painkiller effects. It also contains anti-inflammatory effects.
   Rose oil also contains anti-cancer, anti-depressant, anti-microbial and anti-bacterial properties. It also contains memory enhancement properties and hence is recommended for Alzheimer's disease.

4. **Food and drinks.**
   Rose hips are used to make jelly, jam, juice and is also used to make tea. It contains high amount of vitamin-C, even higher than citrus fruits, tannins, carotenoids and polyphenols etc.
   Rosehip syrup is also prepared by pressing and filtering the rosehips.
   Rosehip candies are also prepared by boiling it with water and sugar.
   Fermented roses are also used in preparation of wine.
   Dried rose petals, also commonly known as Gulkand is also used as a laxative and flavouring agent.

5. **Rose concrete.**
   Rose concrete, also called as rose absolute, is highly concentrated aromatic substance that is extracted from the petals by the process of solvent extraction.
   It is produced by processing of roses with different solvents to produce a semi-solid, waxy substance that contains the volatile aromatic compounds responsible for its unique fragrance.
   It is mostly known for its rich and deep fragrance. Due to its high concentration of these aromatic compounds, it is a highly valuable ingredient by perfume industries.

6. **Other uses.**
   Among all the above uses, roses also contain highly aesthetic value and are used as offerings in temples, making rangolis, organic colours for different Hindu festivals like holi etc. as flowers are one of the most important requirements during sacred rituals in Sanatan-dharma.
   Roses are the primary ingredient for skin and body care cosmetic products.
   Rosehip seed oil is also used by cosmetic companies due to its anti-aging properties.
   Roses are also used for dried flower arrangements. Roses for dry flower are preferred at bud-stages.

CONCLUSION.

The process of value addition in flowers plays an important role in the ornamental sector as it increases the economic value of the flowers after the products prepared using different processing methods. The process of value addition attracts the interest of the

consumers and provides additional income for producers while also managing the wastage of some of the biproducts. The process of value addition increases the demand and economic value of the raw product contributing to the economy through trading and export while also creating space for innovation in transport and logistics sector. Value addition of flowers also provides room for new entrepreneurships and provide employment in rural areas by creating employment that further helps in resolving the poverty and unemployment issues faced by the country. The intervention of the government is also crucial to support the industry and encourage more people to create more innovation in this sector. It can be accomplished by creating awareness about floriculture in the rural areas and motivating farmers to cultivate more and more flowers that can further play an important role in honeybee conservation as well.

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