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Popular Article

# Tasting Nature's Beauty: Exploring the Delightful World of Edible Flowers

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## Introduction

Edible flowers are flowers that can be safely consumed and are often used as decorative elements in culinary dishes, beverages, and desserts. These flowers add color, flavor and sometimes unique textures to various dishes. However, it's important to note that not all flowers are edible, so it's crucial to positively identify the flowers before consuming them. Plant foods contain a plethora of natural chemicals which while not essential play a vital role in maintaining the proper functioning of the body. With over 25,000 phytonutrients present in edible flowers stand out as a notable category. Not only are they non-toxic and safe for consumption but they have also been utilized by humans for centuries to embellish dishes provide nutritional benefits and contribute to overall well-being. The growing awareness and advancements in preservation techniques have amplified the societal and economic significance of certain edible flowers. It's now common place to encounter salads and soups adorned with edible flowers while dried blossoms are frequently employed in teas available in the market. Notably, many industrial applications of edible flowers revolve around crafting flower teas particularly prominent in China. This trend could be attributed to the straight forward infusion method that effectively extracts bioactive compounds from these flowers. A prime illustration is the Five-Golden-Flowers tea a time-honored herbal beverage in China celebrated for its diverse health-promoting effects. Research findings have suggested that edible flowers exhibit antioxidant activities on par with those found in fruits and vegetables. This characteristic positions them as potential candidates for entry into the food market capitalizing on their nutraceutical properties (Benvenuti *et al.*, 2016).

## History & importance

For millennia, edible flowers have been valued for therapeutic roles in folk medicine believed to possess anti-anxiety, anti-cancer, antioxidant and anti-microbial properties. Culinary employment stems from their enhancement of aesthetic appeal, taste and flavor. The practice of consuming flowers



is not novel but a revival of ancient ethno botanical practices evident in culinary traditions of Ancient Greece, Rome and Egypt dating as far back as 140 B.C. Historical references highlight their diverse applications: Victorian use of candied violets for desserts, Italians and Spanish enjoying stuffed squash blossoms, French inclusion of carnation petals in Chartreuse, Indians utilizing rose petals for liqueurs and Egyptian storage of crystallized violets. Chinese Imperial Palaces further showcased chrysanthemum wine's regal presence.

### Popularity & Trends

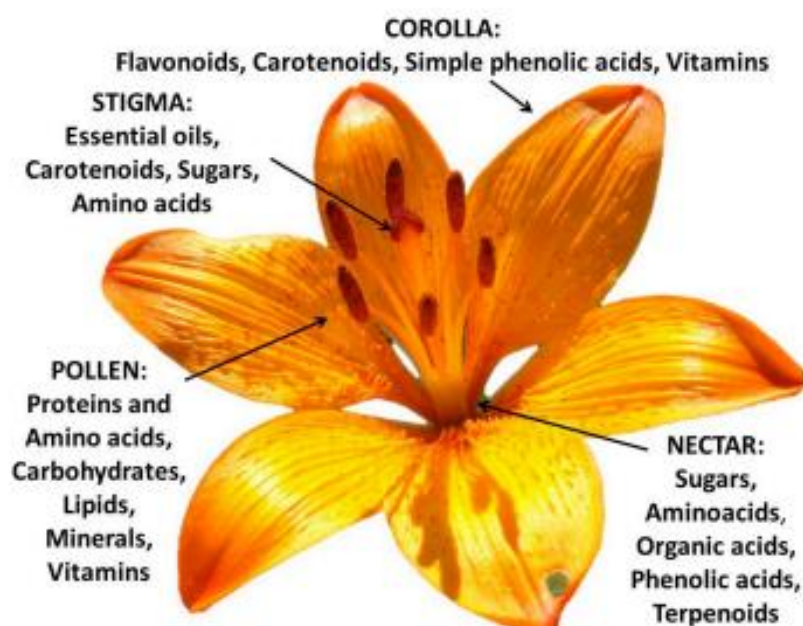
The "latest food fashion" in the UK, Portugal and Australia has created a complex niche market. Chefs are integrating edible flowers into dishes, beverages and sweets for added color and flavor offering consumers a chance to experience these blooms. Consumers are driven by a curiosity for new flavors and textures, a nostalgia for past lifestyles and a desire for bioactive compounds. Meanwhile, global producers and sales outlets including supermarkets, local markets and online platforms are on the rise. Organic and gourmet markets are also selling compact packages of fresh edible flowers.

### Companies dedicated to sell edible flowers

Fleurs et saveurs -France, ERVAS finas-Brazil, Meadowsweets-UK and BloomBites-Netherlands.

### Nutritional Value of Flower Structure

Prevalent phytochemicals of the different components of the edible *Lilium bulbiferum* flower (Benvenuti and Mazzoncini, 2021)



### Flower Chemicals Responsible for Nutraceutical Properties

- Phenolic compounds (phenolic acids, flavonols, flavons, flavanols and anthocyanidins)
- Carotenoids (lutein, zeaxanthin,  $\beta$ -cryptoxanthin,  $\alpha$ -carotene,  $\beta$ -carotene and lycopene)



- Tocols with (vitamin E activity): tocopherols (60-97% of total contend) and tocotrienols
- Essential oils
- Mineral content

SL.NO	Activity	Edible flowers	Bioactive compound present
1	Antioxidant activity	<i>Sambucus nigra</i> , <i>Robinia pseudoacacia</i> , <i>Cichorium intybus</i>	Rutin, quercetin, kaempferol, myricetin, and Luteolin.
		<i>Five-Golden-Flowers Tea: (Rosa rugosa</i> , <i>Osmanthus fragrans</i> , <i>Flos chrysanthemi</i> , <i>Lonicera japonica and Jasminum sambac)</i>	Rutin, chlorogenic acid, epicatechin, gallic acid, and p-coumaric acid.
2	Anticancer	<i>Callistemon citrinus</i>	1,8-cineole, $\alpha$ -pinene, $\alpha$ -terpineol, $\alpha$ -phellandrene, limonene, and $\alpha$ -terpinene
		<i>Tagetes patula</i>	Methyl protocatechuate, patuletin, and patulitrin
3	Neuro-protective	<i>Begonia semperflorens</i>	kaempferol
		<i>Osmanthus fragrans</i>	Essential oil (eugenol and geraniol)
4	Anti-diabetic	<i>Lonicera japonica</i>	Lonjaponspirosides bound with amino acid residue of $\alpha$ -glucosidase resulting in different anti-diabetic properties

### Toxicity of Edible Flowers

Phytochemicals primarily responsible for toxicity encompass alkaloids, saponins, terpenes and glycosides. Elevated levels of toxicity or poison content are notably found in certain plant families including Ranunculaceae, Apocynaceae and Euphorbiaceae. Within the Ranunculaceae family ornamental species abound yet they consistently possess high toxicity. Illustrative examples include Aconitum, Anemone, Aquilegia and Helleborus. Conversely, botanical families like Liliaceae, Fabaceae, Scrophulariaceae and Solanaceae demonstrate infrequent toxicity and are widely utilized for both culinary and medicinal purposes encompassing not only the flowers but various plant parts.

### Cropping System

The cultivation of edible flowers necessitates an organic approach due to consumer preferences for innovative and pesticide-free foods. Embrace nutrient management strategies tailored to the organic cultivation of edible flowers. This is crucial considering that conventional methods employed



in non-edible ornamental crops utilizing undesirable chemicals like sulphite and dimethoate as pesticides are incompatible with human consumption (Matyjaszczyk and Smiechowska, 2019).

### **Post-Harvest Technologies**

Edible flowers are more delicate compared to cut flowers due to their shorter stems. Some studies suggest a need for immediate consumption on the harvest day which can hinder commercial feasibility. Currently, no standardized storage guidelines exist for edible flowers. Typically they are marketed fresh enclosed in compact plastic packaging or plastic wrap often positioned alongside fresh herbs in refrigerated sections. Common postharvest techniques include refrigeration, drying, sugar canning and preservation in distillates.

### **Exporters and markets of edible flowers**

Ethiopia contributes 7% of the global export of edible flowers, as reported by the Central Intelligence Agency's World Fact book in 2018. Ecuador on the other hand exports approximately 1% of the world's edible roses according to Reuters in 2010. Within China industrial and medicinal applications account for just 8% of the flower market as indicated in a report from Kunming in 2010. In the Indian market, companies like Ferns n Petals, Nature's Basket, Big basket, Micro greens and Simply Fresh are actively engaged in the marketing of edible flowers.

### **Conclusion**

The world of edible flowers is rich with historical significance and modern innovation. These blooms which have been utilized across cultures for various purposes are currently experiencing a resurgence as a novel food trend. With the growing demand driven by consumer preferences and culinary creativity edible flowers are being embraced by both individuals and professional chefs. Their potential to enhance flavor, add color, offer health benefits and elevate the visual appeal of dishes is being recognized. Nevertheless, there are still challenges to overcome including the need for further legislative support, advancements in production practices and increased awareness among consumers. As the journey continues the realm of edible flowers holds promise for a flavorful and visually appealing culinary future.

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