



## **Medicinal and Nutritional Importance of Marigold**

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### **Abstract**

Marigold (*Tagetes* spp.) is one of the most widely cultivated ornamental flowers in the world. Beyond its aesthetic and cultural significance, marigold possesses remarkable medicinal and nutritional value. It is a rich source of carotenoids, particularly lutein and zeaxanthin, which play a crucial role in eye health and antioxidant protection. Marigold extracts also exhibit antimicrobial, anti-inflammatory, wound-healing, and hepatoprotective properties. In addition, marigold petals are used in poultry feed to enhance egg yolk pigmentation and as a natural colorant in the food and cosmetic industries. Growing scientific evidence supports the therapeutic potential of marigold in traditional and modern medicine. This article highlights the phytochemical composition, nutritional components, and diverse medicinal applications of marigold, emphasizing its importance beyond ornamental use.

### **Introduction**

Marigold belongs primarily to the genus *Tagetes* (family Asteraceae), commonly known as African marigold (*Tagetes erecta*) and French marigold (*Tagetes patula*). Another closely related medicinal species is *Calendula officinalis*, often called pot marigold. While *Tagetes* species are widely grown for ornamental and industrial purposes, *Calendula* is more commonly associated with herbal medicine.

Traditionally, marigold flowers have been used in Ayurveda, Unani, and folk medicine for treating skin disorders, wounds, inflammation, and digestive problems. In recent decades, scientific research has confirmed that marigold flowers are rich in bioactive compounds such as carotenoids, flavonoids, essential oils, and triterpenoids, which contribute to their therapeutic properties.

With increasing interest in natural antioxidants and plant-based nutraceuticals, marigold has emerged as an important medicinal and nutritional resource.

### **Phytochemical Composition of Marigold**

Marigold flowers contain several biologically active compounds:

- **Carotenoids** (lutein, zeaxanthin,  $\beta$ -carotene)



- **Flavonoids** (quercetin, isorhamnetin)
- **Essential oils** (tagetone, limonene, ocimene)
- **Triterpenoids and saponins**
- **Phenolic compounds**

Among these, lutein is the most commercially significant compound extracted from *Tagetes erecta*. Marigold petals are one of the richest natural sources of lutein.

### **Nutritional Importance of Marigold**

#### **1. Rich Source of Lutein and Zeaxanthin**

Lutein and zeaxanthin are xanthophyll carotenoids essential for eye health. They accumulate in the macula of the retina and help:

- Filter harmful blue light
- Reduce oxidative stress
- Prevent age-related macular degeneration (AMD)

Marigold petals are commercially used for lutein extraction, which is incorporated into dietary supplements and fortified foods.

#### **2. Antioxidant Properties**

The carotenoids and flavonoids in marigold act as strong antioxidants. They neutralize free radicals and protect cells from oxidative damage. Antioxidants play a key role in reducing the risk of:

- Cardiovascular diseases
- Cancer
- Diabetes
- Neurodegenerative disorders

Regular intake of carotenoid-rich foods is associated with improved overall health.

#### **3. Natural Food Colorant**

Marigold extracts are used as natural yellow–orange food colorants in:



- Dairy products
- Confectionery
- Beverages
- Poultry feed

In poultry nutrition, marigold meal enhances egg yolk color and broiler skin pigmentation due to high lutein content.

### **Medicinal Importance of Marigold**

#### **1. Anti-Inflammatory Activity**

Extracts of *Calendula officinalis* have demonstrated significant anti-inflammatory effects. These properties are useful in treating:

- Skin irritation
- Dermatitis
- Burns
- Inflammatory conditions

Topical ointments containing calendula are widely used for wound care.

#### **2. Wound Healing and Skin Health**

Marigold promotes tissue regeneration and collagen production. Studies indicate that calendula extracts accelerate wound healing by increasing blood flow and stimulating epithelialization.

It is commonly used in creams and ointments for:

- Minor cuts
- Burns
- Diaper rash
- Surgical wounds

#### **3. Antimicrobial and Antifungal Activity**

Essential oils from *Tagetes* species exhibit antimicrobial activity against several bacteria and fungi. This



makes marigold useful in managing infections and preserving herbal formulations.

#### **4. Anticancer Potential**

Research suggests that carotenoids and flavonoids from marigold possess anticancer properties due to their antioxidant and anti-proliferative effects. Lutein has been studied for its role in reducing the risk of certain cancers by inhibiting oxidative DNA damage.

#### **5. Hepatoprotective and Gastroprotective Effects**

Experimental studies show that marigold extracts may protect liver tissue from toxic damage and reduce gastric ulcers due to their anti-inflammatory and antioxidant actions.

#### **6. Role in Traditional Medicine**

In traditional systems of medicine:

- Flowers are used for treating skin diseases and eye disorders.
- Infusions are used for digestive complaints.
- Petals are applied externally for wound care.

Modern pharmacological studies support many of these traditional claims.

#### **Industrial and Economic Importance**

Marigold cultivation has expanded due to demand for lutein extraction. India is one of the leading producers of marigold for carotenoid extraction. The lutein industry supplies:

- Nutraceutical companies
- Poultry feed manufacturers
- Pharmaceutical industries
- Cosmetic industries

Thus, marigold serves as both a medicinal plant and an economically important floricultural crop.

#### **Safety and Considerations**

Marigold extracts are generally considered safe when used appropriately. However:

- Excessive supplementation should be avoided.
- Individuals allergic to Asteraceae family plants should exercise caution.



Natural consumption through diet and herbal preparations is generally safe.

### **Conclusion**

Marigold is far more than an ornamental flower used in garlands and decorations. It is a rich source of carotenoids, especially lutein, which supports eye health and acts as a powerful antioxidant. Its anti-inflammatory, antimicrobial, wound-healing, and hepatoprotective properties make it valuable in both traditional and modern medicine. Additionally, its use as a natural food colorant and poultry feed additive enhances its nutritional and economic significance. With growing global interest in plant-based nutraceuticals and herbal medicine, marigold stands out as a multifunctional crop with immense medicinal and nutritional importance. Continued research and value addition can further enhance its role in human health and agro-industrial development.

### **References**

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