

Annuals and Their Medicinal Properties

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Annual flowers beautify the surroundings and exhibit a good display of blooms at a low cost. These flowers bring a change in the look of the garden with a change in season. The herbaceous annuals have varied uses in the garden. Annuals are known for their beautiful blooms and for being easy to care for. Another advantage of annuals is that they can be planted in pots, hanging baskets and herbaceous borders. Annuals have the potential to thrive in almost all soil types. They are generally grown in the beds and in informal beds with or without perennials and bulbous flowers, particularly mixed borders to obtain a longer duration of flowering. Many species and varieties of attractive annuals with various shades of colour are available in different seasons of the year. These are one of the most popular cut flowers with great diversification of cultivars for different regions. Low input cost and maintenance requirements, diversification in cultivars and colours, long vase life, and wide adaptability contribute to their popularity (Starman *et al.* 1995; Dole *et al.* 2009 and Ahmad *et al.* 2014).

Medicinal Properties of Various Annuals

(i) Globe Amaranth or Bachelor Button (*Gomphrena sp.*)

- The edible plant *G. globosa* has been used in herbal medicine.
- In Trinidad, the flowers are boiled to make a tea which is used for baby gripe, oliguria, cough and diabetes.
- Caribbean folk medicine historically used globe amaranth to relieve prostate and reproductive problems.
- *G. globosa* is an edible species and the purple inflorescences' decoction is commonly consumed for the treatment of several respiratory inflammatory conditions, such as bronchial asthma, acute and chronic bronchitis or whooping cough (Cai, Xing, Sun, & Corke, 2006).
- Its medicinal properties have led to the consumption of its inflorescences in many countries.

- The abundance of betacyanins suggests that *G. globosa* could constitute a potential alternative source of red-violet pigments for the food industry, with stability characteristics more advantageous than anthocyanins.
- *G. globosa* is a folk remedy for oliguria, heat and empacho, hypertension (Yusuf *et al.*, 2009), cough and diabetes (Arcanjo *et al.*, 2011) and expectorant for animals (Asolkar *et al.*, 1992).
- It is also clearly evident from the above findings that the whole plant of *G. globosa* has high antioxidant potential and significant cytotoxic activities. (Antimicrobial, Antioxidant and Cytotoxic Activities of *Gomphrena globosa* (L.) by Md. Hamiduzzaman and A.T.M. Zafrul Azam)
- It is very heat tolerant and fairly drought resistant, but grows best in full sun and regular moisture.
- This plant is popular in landscape design and cutting gardens for its vivid colors and color retention.
- The edible plant *G. globosa* has been used in herbal medicine.
- In Trinidad, the flowers are boiled to make a tea which is used for baby gripe, oliguria, cough and diabetes.
- Caribbean folk medicine historically used globe amaranth to relieve prostate and reproductive problems.
- The purple inflorescences have been used as a remedy for several respiratory inflammation conditions including bronchial asthma, acute and chronic bronchitis, and whooping cough.
- Recommended uses in traditional medicine range from the treatment of respiratory diseases, jaundice, urinary system conditions, and kidney problems.
- Manuscripts dating back to the 1870s ascribe beneficial properties to *Gomphrena* roots, specifically for digestive and respiratory tract issues as well as the ability to act as a stimulant.

- The flowers of *G. globosa* are rich in betacyanins which have a wide range of applications as additives and supplements in the food industry, cosmetics, and livestock feed.

(ii) Zinnia

- Zinnia species are used in folk medicine for the treatment of malaria and stomach pain and are used as hepatoprotective, antiparasitic, antifungal and antibacterial agents.

(iii) Cosmos

- *Cosmos caudatus* is widely used as a traditional medicine in Southeast Asia.
- *C. caudatus* has been reported as a rich source of bioactive compounds such as ascorbic acid, quercetin, and chlorogenic acid.
- Studies have shown that *C. caudatus* exhibits high anti-oxidant capacity and various medicinal properties, including anti-diabetic activity, anti-hypertensive properties, anti-inflammatory responses, bone-protective effect, and anti-microbial activity.
- Currently available evidence suggests that *C. caudatus* has beneficial effects such as reducing blood glucose, reducing blood pressure, promoting healthy bone formation.
- However, human clinical trial is warranted.
- Traditionally, *C. caudatus* has been used to boost blood circulation, to strengthen the bones, to reduce body heat, as an anti-aging agent, and to treat infectious disease.
- Studies have shown that 100 g of fresh *C. caudatus* contains approximately 2500 mg ascorbic acid equivalent anti-oxidant capacity (AEAC) compared to local fruits with AEAC index of less than 300 mg.
- Anti-diabetic activity: - A previous study on obese, *C. caudatus* extract-treated rats showed a significant reduction in plasma blood glucose as compared to the control rats after one month of *C. caudatus* extract supplementation.
- Anti-inflammatory activity: - Methanol and aqueous *C. caudatus* extracts at a dose of 200 mg/kg have exhibited significant anti-inflammatory activity by suppressing mouse paw edema induced by carrageenan. The result was comparable to that of the standard drug diclofenac sodium (10 mg/kg body weight) in inhibiting paw edema.
- Phenylpropane derivatives isolated from a root extract of *C. caudatus* have shown anti-fungal

activity against *Cladosporium cucumerinum* and *Candida albicans* using bioautographic thin-layer chromatography.

(iv) Marigold

- Tagetes or marigold plant has been used for immune response, stomach pain and other medicinal purposes.
- Both leaves and flowers are used for medicinal purposes (Tripathy and Gupta 1991). Leaf paste is used externally against boils and carbuncles. Leaf extract is a good remedy for earache. Flower extract is considered as a blood purifier, as a cure for bleeding piles and also as a good remedy for eye diseases and ulcers.

(v) China Aster

- Medicinal Uses: For Rheumatism

(vi) Lavender

- The flower buds are used as species in cooking and its oil is used to treat heal burns and wounds.

(vii) Echinacea

- Echinacea tea boosts the immune system, supports oral health and good source of antioxidants like vitamin C.

(viii) Chamomile

- Chamomile flower tea are best for skin care, runny nose and sore throat.

(ix) Yarrow

- Yarrow flowering plant has historical use in traditional medicine, to treat headaches and battle wounds. *Achillea millefolium* or common yarrow is native to Asia and Europe.

(x) Cornflower

- Cornflower used as one of the main ingredients in tea blends and herbal teas. The *Centaurea cyanus* treat fever, Constipation and liver disorders.

(xi) Daisies

- Daisies flowers or *Bellis perennis* also known as common daisy are used in culinary and as herbal medicine for astringent properties to treat wounds, as tea and after certain surgical procedures.

(xii) Balsam

- Different parts of the plant are used as traditional remedies for disease and skin afflictions. Juice from the leaves is used to treat warts and snakebites, and the flower is applied to burns (Wang et al. 2009). This species has been used as indigenous traditional medicine in Asia

for rheumatism, fractures, and other ailments (Park et al. 2003).

- Canada balsam is applied directly to the skin to treat hemorrhoids and kill germs. Historically, it has been used for burns, sores, cuts, tumors, heart and chest pains, cancer, mucous membrane swelling (inflammation), colds, coughs, warts, wounds, and as a pain-reliever.
- In ancient China, *Impatiens* petals mashed with rose and orchid petals and alum were used as nail polish: leaving the mixture on the nails for some hours colored them pink or reddish.

(xiii) Calendula

- Calendula flower is used to prevent muscle spasms, start menstrual periods, and reduce

fever. It is also used for treating sore throat and mouth, menstrual cramps, cancer, and stomach and duodenal ulcers.

- Calendula is applied to the skin to reduce pain and swelling (inflammation) and to treat poorly healing wounds and leg ulcers. It is also applied to the skin (used topically) for nosebleeds, varicose veins, hemorrhoids, inflammation of the rectum (proctitis), and inflammation of the lining of the eyelid (conjunctivitis).
- Early research suggests that that applying calendula to the affected area may reduce pain in people with anal tears who do not respond to treatment with sitz baths.

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