

LITERATURE REVIEW OF TAGETUS PATULA

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Mini Review

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ABSTRACT

Tagetes patula L., Asteraceae, popularly known as French marigold, originated in Mexico. It is widely used as an ornamental plant and is sold freely in open markets and garden shop. In folk medicine the flowers and leaves are used for his or her antiseptic, diuretic, depurative and bug repellent activities. Chemical studies with flowers and leaves of T. patula identified terpenes, alkaloids, carotenoids, thiophenes, fatty acids, and flavonoids, as constituents, some of which may elicit the biological activities; these include insecticidal, nematicidal, larvicidal, antifungal, anti-inflammatory activities. As Piccaglia and collaborators (1998) found, the flowers of T. patula are a rich source of lutein and its esters. For this reason the genus is widely cultivated in Central America as food coloring, which is approved by the European Union. However, after carotenoids are extracted, the residue is discarded or only used as animal feed or fertilizer.

INTRODUCTION

Morphology

The flower head had tubular disk flowers in the centre and ray flowers, these often strap-shaped, around the periphery. Flowers are found in shades of yellow, orange, red and everything in between. The French marigold has smaller flowers than African kind. The numbers of flowers in the French type are more. The width of the flower head is 3.5-6mm

Stems are initially upright, but thanks to their repeated branching will spread and mound, becoming procumbent by season's end and quite spreading.

Leaves are feathery toothed, divided fragment. Leaves are actually simple, but deeply sinuate to the midrib to the point of appearing pinnately compound, with each lobe having coarse serrations that are tipped with aromatic glands. The length of the leaf blade is 30-250mm

Seeds heads are abundant and quite noticeable, detracting somewhat from the continuous showy flowering, and are ideally sheared off (dead-headed) to market enhancing flowering (but this is often rarely done). Seeds will slightly self-sow from one season to the next.

Vernacular names

Marathi: Zendu

Hindi: Genda

Bengali: Genda

Gujarati: Guliharo

Kannada: Seemeshamantige

Malayalam: Chendumalli

Sanskrit: Sandu

Telugu: Krishna banti

Taxonomic classification

Kingdom: Plantae

Sub-kingdom: Tracheobionta

Superdivision: Spermatophyta

Division: Magnoliophyta

Class: Magnoliopsida

Subclass: Asteridae

Order: Asterales

Family: Asteraceae

Genus: *Tagetes* L

Species: *Tagetes patula*

Distribution

The genus *Tagetes* (Asteraceae) is native to Americas and Mexico but some of its members (in particular *T. erecta* and *T. patula*) commonly referred to as marigolds were naturalized within the Old World (India, North Africa, and Europe).

Moreover, some researchers suggest that both species reached India anciently through pre-Columbian transoceanic voyages. Marigold was introduced to Georgia from India, and its ground dried petals became one of the most popular local spices. Both *T. erecta* and *T. patula* are grown in Georgia as spice and dye plants recognized for their health-beneficial properties.

Chemical constituents

Phytochemical studies administered to different species of *Tagetes* have revealed the presence of flavonoids and terpenes displaying pharmacological and insecticidal properties.

Flavones of *T. patula* varieties were analysed by TLC and paper chromatography to establish the optimal conditions for identification and separation of flavones. Patuletin, quercetagenin and their glucosides patuletrin and

quercetagetrin were isolated. The flavonoids and fatty acids of *Tagetes* and their taxonomic significance have been reviewed. Patuletin and patuletrin were isolated from the seeds of *T. patula* and quercetageetin and quercetageetin from seeds of *T. erecta* during the fruit-bearing stage (the flavonoid fraction rich in quercetageetin and quercetin, as well as crude marigold extracts, were used for further trials with Jurkat cells. A *Tagetes* extract contained ~ 27% carotenoids with β carotene 0.4%, cryptoxanthin esters 1.5% and xanthophyll esters 86.1%.

The major constituents of oil are were piperitone (33.77 %), trans- β -ocymene (14.83 %), terpinolene (13.87 %) and β -caryophyllene (9.56 %).

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