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JASMINUM GRANDIFLORUM L.: A COMPREHENSIVE REVIEW OF ITS PHYTOCHEMISTRY AND THERAPEUTIC APPLICATIONS

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Abstract:

Jasminum grandiflorum L., belonging to the family Oleaceae, is a perennial aromatic shrub or climber widely cultivated for its fragrant white flowers. The plant bears opposite pinnate leaves and star-shaped flowers, making it an important ornamental and commercial crop, especially in perfumery. Taxonomically, it is classified under Kingdom Plantae, Order Lamiales, Family Oleaceae, Genus Jasminum, and Species grandiflorum. It grows well in warm climates with full sunlight and well-drained loamy soil. Propagation is mainly through cuttings or layering, and regular pruning enhances flowering. Medicinally, the plant is valued in traditional systems like Ayurveda and Unani. Its flowers, leaves, and roots possess anti-inflammatory, antimicrobial, antioxidant, and mild sedative properties, and are used in the treatment of skin diseases, wounds, fever, and stress-related disorders.

Keywords: *Jasminum grandiflorum L., medicinal uses, Phytochemistry*

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INTRODUCTION:

PLANT DESCRIPTION

Jasminum grandiflorum is a large, evergreen, scrambling or twining shrub that grows up to 10–15 m in height. It is native to Asia, including Kashmir, Afghanistan, and Persia, and occurs at elevations of 700–2,700 m. The leaves are opposite and imparipinnate, 5.0–12.5 cm long, with 7–11 leaflets. The terminal leaflet is slightly larger, rhomboid-ovate to lanceolate, while the lateral leaflets are ovate, usually obtuse, with mucronate tips; the distal pair may be connate, and the proximal leaflets are shortly petiolated or sessile.

The flowers are highly fragrant, 3.0–3.8 cm across, white with a pink tinge externally, and borne in lax terminal or axillary cymes longer than the leaves. The calyx has five subulate lobes, 2–3 times longer than the short tube. The corolla tube measures 1.8–2.5 cm with five elliptic to obovate lobes. The ovary is bicarpellary. Fruits are black, elliptic berries when ripe. The species is cultivated in India and found wild in the sub-tropical north-west Himalayas, Western Ghats, Nilgiris, and other regions, as well as in France, Italy, China, Japan, Morocco, and Egypt. [1,2]

Fig no:1 *Jasminum grandiflorum* L. plant

CULTIVATION AND COLLECTION

Jasminum grandiflorum is preferably cultivated in well-drained loamy soil with a pH range of 6.5–7.5, although it can also grow successfully in other soil types such as black soil, lateritic soil, and clay loam, provided an efficient drainage system is maintained. The plant is highly sensitive to waterlogging; therefore, proper soil aeration and drainage are essential for healthy growth. Propagation can be effectively carried out using the shoot tip culture method, which ensures uniform and disease-free plants.

Flowering generally begins within the first year of planting, indicating its early reproductive potential. The flowering season extends from May to December, during which flowers are harvested regularly. The leaves of *Jasminum grandiflorum* are of medicinal importance and are carefully collected by hand to avoid damage to the plant. After collection, the plant material is thoroughly cleaned and shade-dried to preserve its quality, making it suitable for further pharmacological and scientific studies.[3]

CHEMICAL CONSTITUENTS

Jasminum grandiflorum L. contains a diverse range of bioactive phytochemicals, including alkaloids such as jasminine and nuciferine. It is also rich in flavonoids, notably quercetin, kaempferol, and rutin, which contribute to its antioxidant potential. In addition, the plant possesses important terpenoid compounds, including linalool and methyl jasmonate, which are largely responsible for its characteristic fragrance and therapeutic properties.[4]

MEDICINAL USES

Jasminum grandiflorum exhibits a wide range of pharmacological activities, including significant anti-inflammatory and antimicrobial properties. It is also known for its wound-healing potential, promoting tissue repair and recovery. Additionally, the plant has demonstrated anti-diabetic activity, supporting its traditional use in the management of m metabolic disorders.[5]

SUMMARY

Jasminum grandiflorum L., commonly known as Spanish jasmine, is a medicinally important plant widely used in traditional systems of medicine. The plant is rich in bioactive constituents such as flavonoids, phenolic compounds, alkaloids, terpenoids, and glycosides, which contribute to its diverse pharmacological activities. Various studies have reported its antioxidant, anti-inflammatory, antimicrobial, antidiabetic, hepatoprotective, wound-healing. Different parts of the plant, especially the leaves and flowers, have been explored using aqueous, ethanolic, and methanolic extracts, showing significant therapeutic relevance. This review compiles and critically summarizes the botanical description, phytochemical profile, traditional uses, and reported pharmacological activities of *Jasminum grandiflorum* L.

CONCLUSION:

Based on the reviewed literature, *Jasminum grandiflorum* L. emerges as a valuable medicinal plant with broad pharmacological potential supported by its rich phytochemical composition. Scientific evidence validates many of its traditional uses, particularly its antioxidant and protective roles

against oxidative stress-related disorders. Despite promising experimental findings, further systematic studies including standardization of extracts, isolation of active compounds, toxicity evaluation, and clinical investigations are necessary. Future research may lead to the development of novel, safe, and effective plant-based therapeutic agents derived from *Jasminum grandiflorum* L.

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