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JACOBEA MARITIMA: BEAUTIFUL AMBIVALENT NATURE'S GIFT

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ABSTRACT

Jacobaea maritima (Dusty Miller or Silver Ragwort) is a perennial ornamental plant belonging to the family Asteraceae and is native to the Mediterranean region. Besides its decorative value, the plant possesses significant medicinal properties due to the presence of bioactive compounds such as flavonoids, phenolics, alkaloids, terpenoids, tannins, and essential oils. Traditionally, it has been used for the management of eye disorders, including cataracts and conjunctivitis. Pharmacological studies have demonstrated its antioxidant, antibacterial, anti-inflammatory, anticancer, and wound-healing activities. The plant has also gained importance in green nanotechnology for the synthesis of silver nanoparticles with enhanced antimicrobial and anticancer potential. These therapeutic effects are mainly attributed to its ability to reduce oxidative stress, inhibit microbial growth, and promote tissue repair. However, the presence of pyrrolizidine alkaloids may cause toxicity, requiring careful use. Overall, J. maritima represents a promising source of natural compounds for future pharmaceutical and biomedical applications.

KEYWORDS: Jacobaea maritima, Dusty Miller, Silver Ragwort, Silver Nanoparticles, Herbal Medicine.

INTRODUCTION

Jacobaea maritima (L.) Pelser & Meijden, commonly known as Dusty Miller or Silver Ragwort, is a perennial ornamental plant belonging to the family Asteraceae. It is native to the Mediterranean region and is widely cultivated throughout the world for its attractive silvery-grey foliage and adaptability to diverse environmental conditions. The plant is characterized by deeply lobed leaves covered with dense white hairs, which provide protection against excessive water loss and intense sunlight exposure. Owing to its drought tolerance and low maintenance requirements, it is commonly used in landscaping, garden borders, and container gardening.[1]

In addition to its ornamental value, J. maritima possesses significant medicinal importance due to the presence of various bioactive phytochemicals, including flavonoids, phenolic compounds, alkaloids, terpenoids, tannins, and essential oils. These constituents are responsible for a wide range of biological activities such as antioxidant, antimicrobial, anti-inflammatory, wound-healing, and anticancer effects.[2,3] Traditionally, the plant has been used in herbal and homeopathic medicine for the management of eye disorders, including cataracts, conjunctivitis, and corneal opacity.[4]

Recent scientific investigations have also highlighted its role in the green synthesis of silver nanoparticles, which exhibit enhanced antimicrobial and anticancer properties. Despite its therapeutic potential, the presence of pyrrolizidine alkaloids necessitates careful evaluation of its safety and toxicity profile.[5]

TAXONOMICAL CLASSIFICATION

Table 1: Taxonomical Classification.

Kingdom	Plantae
Division	Magnoliophyta
Class	Magnoliopsida
Order	Asterales
Family	Asteraceae
Genus	Jacobaea
Species	Jacobaea maritima (L.)
Kingdom	Plantae

USES

Treatment of Eye Disorders: Traditionally used in homeopathic and folk medicine for managing cataracts, conjunctivitis, corneal opacity, and other eye-related ailments. Preparations made from the plant are believed to support eye health and improve vision.[6,7]

Wound Healing: Fresh leaf extracts and herbal preparations have been applied to minor wounds, cuts, and burns to promote healing and prevent infection.[8]

Anti-inflammatory Uses: The plant has been used traditionally to reduce swelling, pain, and inflammation associated with skin disorders and minor injuries.[8,9]

Antimicrobial Applications: Extracts have been employed in folk medicine to combat microbial infections due to their antibacterial and antifungal properties.[8,9]

Relief of Muscle Spasms: Traditional remedies containing J. maritima have been used for their antispasmodic effects to alleviate muscle cramps and spasms.[9]

Management of Migraine and Anxiety: In some traditional systems, the plant has been utilized to reduce headaches, migraine symptoms, and anxiety-related conditions.[9]

Ornamental and Cultural Use: Due to its attractive silver-grey foliage, it is widely cultivated in gardens, parks, and landscapes for decorative purposes and is often used in floral arrangements.[10]

HABITAT

Pelser & Meijden, commonly known as Silver Ragwort or Dusty Miller, is native to the western and central Mediterranean region. It naturally grows in rocky coastal cliffs, coastal slopes, sand dunes, and dry, well-drained calcareous soils, where it is exposed to full sunlight, sea winds, and drought conditions. The species is well adapted to Mediterranean climates due to its dense silvery hairs, which reduce water loss and protect the plant from intense solar radiation. Although primarily a coastal species, it is also cultivated worldwide as an ornamental plant and has become naturalized in several regions outside its native range.[11,12]

Figure 1: Jacobaea maritime.

SIDE EFFECTS

Jacobaea maritima (Senecio cineraria), commonly known as Dusty Miller, contains pyrrolizidine alkaloids (PAs), naturally occurring compounds that may exhibit hepatotoxic effects when consumed in significant amounts. These alkaloids can damage the liver by causing hepatic veno-occlusive disease, a condition characterized by obstruction of small hepatic veins. Prolonged exposure to hepatotoxic PAs has also been associated with carcinogenic potential and developmental abnormalities. Therefore, preparations that are not certified as “PA-free” should be used with caution, particularly for internal administration. In addition, direct contact with the plant sap may cause mild skin irritation or allergic reactions in sensitive individuals. Accidental ingestion of the leaves may result in gastrointestinal discomfort and toxicity in both humans and animals. The plant also contains biologically active compounds, including pyrethrin-like substances, which may contribute to adverse effects when consumed in large quantities. However, small amounts used appropriately are generally considered non-toxic.[13,14]

CONCLUSION

Jacobaea maritima (L.) Pelser & Meijden, formerly known as Senecio cineraria or Cineraria maritima, is a medicinal herb with notable traditional use, especially in the management of ocular disorders. The available literature suggests that its therapeutic potential is largely associated with its antioxidant, anti-inflammatory, antimicrobial, and wound-healing properties, which may support its use in eye care and other minor ailments. At the same time, the presence of pyrrolizidine alkaloids highlights the need for caution, particularly with prolonged internal use, due to possible toxic effects. Although homeopathic and herbal preparations of the plant are widely used, scientific evidence confirming their efficacy remains limited. Therefore, further phytochemical, pharmacological, and clinical studies are essential to validate its medicinal value, establish safety, and standardize its formulations for future therapeutic applications.

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