SALVIA
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IMMORTELLE

Helichrysum italicum

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History and traditional usage

According to Homer's epic, after the shipwreck in which he had been imprisoned for many years, the Greek hero Odysseus finally returned to the Phoenician coast where he met the divine Nausika, the beautiful king's daughter. The secret of her beauty was in the extraordinary oil of the flower that never dries up, even when picked up. Certainly, it is immortelle, our domestic plant that prevails in Mediterranean landscapes, especially on sunny rocks.

This **immortal plant** was named after its characteristic light yellow flowers. The name *Helichrysum* originates from the Greek words "*helios*" and "*chrysos*", meaning "*the sun*" and "*the gold*". The type of *Helichrysum italicum* is still known as "*immortelle*" (fra) and "*everlasting*" (immortal and eternal plant). The names are attributed to flowers that retain their yellow color after flowering and drying, as well as its healing and beneficial properties in beauty treatments.

One of the **earliest mentions** of medicinal and healing properties of Helichrysum species appears in the work of a Greek herbal biologist Tefrast from Ereza "Historia Plantarum" (3rd to 2nd cent. BC). It has been written that "Heleiochrysos" can be used (mixed with honey) in the treatment of burns as well as stings and bites from poisonous animals[1].

Another example of the **ancient report** on healing properties of Immortelle comes in the fourth book “De Materia Medica” (1st century) written by the Greek pharmacologist and botanist Pedanius Dioskorid. It is described how the flowers soaked in wine have diuretic properties and help in the treatment of urinary disorders, snake bites, sciatica and hernia[2].

The use of immortelle in inflammatory and allergic disorders treatment such as those associated with respiratory tract and various skin problems is also described[6,7]. Essential oil *H. Italicum* is being used for healing wounds and other skin lesions such as hematoma and scars.

Considering the important role played by *H. italicum* in **traditional medical practice**, it is surprising that articles about traditional usage, pharmacological activity and therapeutic properties of immortelle were very rare before the 1990’s[12]. In the last few decades, various ethno-pharmacological tests have been carried out, some of which will be mentioned below.

Analysis and chemical composition

Until today, a greater number of researchers have tried to determine the chemical composition of the immortelle, but despite this, it is still undiscovered. Due to the large number of compounds the analysis is qu-

ite demanding. In addition, all those compounds are of similar structure and similar physico-chemical properties, which additionally complicates their identification[15]. It is also important to note that the chemical composition of the plant is highly dependent on the degree of plant's development, growing conditions, climate factors, drying process and applied extraction technique[16].

Helichrysum herbs are rich in secondary metabolisers including flavonoids, acetophenones, floroglucinols, pyrones, triterpenes and sesquiterpenes[17]. **Numerous scientific researches** have identified a wide spectrum of structural diversity of its constituents[17,18,19], all which confirm its complex chemical composition. According to Perrini et al.[20], the above ground parts of immortelle contain up to 62 different chemical compounds classified into the following groups, of which we will only mention some of the most commonly used:

Flavonoids
isosalipurposide, apigenin, helikrizin, kaempferol etc.

Essential oil
α pinene (monoterpen), γ curcumene (seskviterpen), neryl acetate (monoterpen), italicene (tetrahydrofuran), β selinene (seskviterpen) etc.

Phenolic acids
dihydroxybenzoic acid, tartaric acid,

p-coumaric acid

Coumarins
Esculetin, umbelliferone, scopoletin

Other
triterpenes and sterols, phthalides, α-pyrone (arzanol) derivatives, floroglucinol and acetophenone derivatives, tannins

Particular attention is paid to polyphenolic compounds of immortelle, which are considered to possess significant pharmacological activity. In the first instance, flavonoids are known for their antimicrobial activity against a wide range of pathogenic microorganisms.

With the increasing prevalence of incurable infections caused by antibiotic-resistant bacteria, flavonoids have **attracted great interest** due to their potential substitution for antibiotics[22]. Their wide spectrum of activity includes antiviral, antibacterial, anti-inflammatory, cardioprotective, anti-diabetic, anti-cancerous, and most common anti-aging action that has so far been confirmed by numerous research studies[23,24,25,26].

Due to its **complex chemical composition**, with a large number of monoterpenes and sesquiterpenes complicated structures that can not be artificially replicated, essential oil is used and plays an important

role in the cosmetic industry[27,28].

Numerous studies have shown that immortelle oil has antibacterial and antifungal activity[29], and accelerates wound healing. Also, immortelle oil is one of the most effective oils for treating hematoma[30].

Arzanol has been identified as one of the major anti-inflammatory and antiviral ingredients from *H. italicum*. Results show that arzanol potentially inhibits the biosynthesis of proinflammatory lipids, which provides an explanation for strong anti-inflammatory activity of immortelle[10].

In other studies, the results show that phenolic acids have a strong antioxidant capacity and antimicrobial activity[31]. Kumarins, organic compounds found in many plants have a variety of biological properties including antimicrobial, antiviral, anti-inflammatory, anti-diabetic, antioxidative and inhibitory activity of the enzyme[32]. Their bacteriostatic and anti-tumor activity makes these compounds attractive for further research and application for various therapeutic purposes[33].

Healing properties

Because of its chemical composition, immortelle has a variety of effects that can help us solve many health problems.

Antimicrobial and antiviral activity

The antimicrobial effect of Immortelle essential oil and its components are the subject of many scientific researches. The *H. italicum* ester extract has an inhibiting effect on *Staphylococcus aureus* bacteria, reduces their growth and reduces some of the enzymes considered to be major virulence factors[30].
Studies of various sources have shown positive effect against various microorganisms[29,30,34,37,39,67].

Immortelle has strong antiviral activity[36]. The diethyl ether extract, obtained from flower edges, shows significant activity against *Herpes simplex* virus type 1[30]. Appenidino and colleagues investigated the effect of arzanol on the replication of HIV-1 virus in T cells and concluded that it inhibits its replication[10].

Anti-inflammatory activity

Immortelle contains ketones and flavonoids that contribute to reducing the inflammation process. Arzanol[11] is isolated as the major anti-inflammatory component. The results of the study indicate the potent inhibition of arzanol by proinflammatory mediators and inflammatory enzymes. Various studies have shown positive effects on inflammation[10,13,16,18,50].

Antioxidant activity

Some flavonoid components show an antioxidant activity closely related to its an-

ti-inflammatory activity. It has also been shown that arzanol is a natural antioxidant with a protective effect against oxidation of lipids in biological systems. Numerous studies have shown positive antioxidant activity of Immortelle[18,19,35,36,40,41].

Antimitotic activity

Blood clots or hematoma are the blood blockages outside the blood vessels that arise due to internal bleeding. Such areas may be bloated, sensitive and most often painful. Immortelle has a very strong effect that reduces hematoma, and essential oil is one of the most effective oils in hematoma treatment[18,30,50,68].

Regenerative activity

It is believed that Immortelle has the power to wipe away the traces of ageing on the face (so-called *antiaging* or *anti-aging*). Thanks to this, it has a great application in cosmetics, especially in creams for the care of dry, old and sensitive skin. These attributes are due to the high proportion of polyphenols, especially flavonoids, which are known as antioxidants[13,21,28,48].

Antifungal activity

Immortelle is effective against fungus replication that can cause skin irritation, infection and slow wound healing. Various studies have shown its positive antifungal activity[16,29].

Insecticidal activity

Several research papers describe the effect of immortelle as a cure to insect bites and to repel insects. Studies have shown that the Immortelle essential oil causes the distinction of mosquitoes *Aedes albopictus* at a concentration of 300 ppm with death rate ranging from 98.3% to 100%[38].

Other effects

Immortelle improves concentration and provides good sleep. It has a soothing effect and has a positive effect on the mood. It is an effective antidepressant[42,43,44].

In addition to the previously mentioned characteristics for which detailed studies have been carried out, a number of other activities such as anti-cancerogenic[45,46,47], cardioprotective[45], analgesic[16,18], expectoritic[16,49], mucolytic[16] and sedative effect[16].

Scientific research review

Since Immortelle products are not registered as products for the treatment of diseases, many traditional uses of this plant still do not have the deserved confirmation. Further clinical trials are needed to validate these data and promote *H. italicum* as an important tool in the treatment of various diseases.

Nevertheless, the critical analysis of traditional data and scientific research presented in this review reveals that the traditional use of immortelle is much wider in applica-

tion than those confirmed by experimental works.

REFERENCES

salviakornati.com/references