Avena Lab
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TECHNICAL DATA SHEET

Product Name: Artemisia Annua Extract

INCI Name: Glycerin, Aqua, Artemisia annua Extract, Benzyl Alcohol, Dehydroacetic Acid

CAS: 56-81-5, 7732-18-5, 84775-74-6, 100-51-6, 520-45-6

Botanical Name: Artemisia annua L.

Synonyms: Sweet wormwood, Sweet Annie, Annual Mugwort (common and trade names)

Chemical Classification: Mixture, Botanical Product

Functional Category: Active botanical extract with antioxidant, anti-inflammatory, and soothing properties; also acts as a secondary humectant and emollient.

Extraction Method: The extract is obtained via ultrasonic extraction using ultrasound frequencies between 20 and 25 kHz. At these frequencies, ultrasonic waves generate microscopic bubbles in the liquid containing the plant material, leading to a phenomenon known as cavitation. Cavitation produces localized high pressure and temperature conditions in the microenvironment around the imploding bubbles. This effect mechanically disrupts plant cell walls, releasing intracellular bioactives and significantly increasing the extraction rate and efficiency. The process is conducted at 25 °C to preserve thermolabile components such as flavonoids, vitamins, and essential oils. Compared to conventional maceration, ultrasonic extraction enables shorter processing time, higher yield, and better utilization of plant material. The resulting extract is preserved with a system composed of benzyl alcohol (0.86%) and dehydroacetic acid (0.14%), approved for use in natural cosmetics and compliant with ECOCERT and COSMOS standards. The extract is water-soluble, which allows easy integration into water-based cosmetic formulations. Its pH value ranges from 4.0 to 6.5, making it suitable for most dermal applications without additional pH adjustments.

Extract Description: The extract of Artemisia annua, commonly known as sweet wormwood, has a long-standing use in traditional medicine. It is rich in compounds such as artemisinin, flavonoids, and terpenes, offering various benefits for skin. It acts as an antioxidant, protecting the skin from free radical damage and slowing down aging.

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Noted for its strong anti-inflammatory effects, it is ideal for sensitive or inflamed skin, as well as acne-prone skin. It helps reduce redness and irritation and is used in preparations for conditions like rosacea and eczema. The extract has a soothing effect, providing comfort particularly for irritated or damaged skin. Its antimicrobial properties add to its appeal in formulations for problematic skin, helping control acne-causing bacteria. It can also be used in moisturizing products, maintaining skin's natural balance and supporting epidermal regeneration by stimulating cell renewal. Its versatility and compatibility with all skin types, including very sensitive skin, make it suitable for creams, serums, masks, and lotions intended for face and body care. The extract is light yellow in color, odorless, and water-soluble.

Bioactive Compounds: The Artemisia annua extract contains a complex blend of phytochemicals responsible for its pronounced antioxidant, anti-inflammatory, antimicrobial, antifungal, and potentially seboregulating effects. This makes it increasingly common in cosmetic formulations designed for sensitive, inflamed, or problematic skin. The most significant group of bioactives includes sesquiterpene lactones primarily artemisinin characteristic of Artemisia annua and known for antimicrobial and anti-inflammatory action. Artemisinin and its derivatives (dihydroartemisinin, artemether, and artesunate) target free radicals, regulate inflammatory mediators, and exhibit potential cytostatic activity, particularly under oxidative stress especially beneficial for acne-prone and inflamed skin. Flavonoids such as quercetin, kaempferol, apigenin, luteolin, and isorhamnetin offer strong antioxidant activity, stabilize capillary walls, improve microcirculation, and reduce redness. They neutralize free radicals and protect cell membranes, preserving skin health and integrity. The extract also contains chlorophyll and carotenoid pigments, including β-carotene (vitamin A precursor), which supports epidermal regeneration and further enhances antioxidant action. Polysaccharides in the extract act as natural humectants, improving hydration, forming a protective film, and calming irritated skin, while also offering mild immunomodulatory effects. Essential oils, present in smaller amounts and dependent on geographic and climatic conditions, typically contain 1,8-cineole, camphor, borneol, pinene, and caryophyllene compounds with antiseptic, refreshing, and decongestant effects, beneficial for oily and inflamed skin. Phenolic acids, including caffeic, chlorogenic, and ferulic acid, enhance antioxidant stability, inhibit free radicals, and protect skin from UV-induced damage. This complex, synergistic blend of bioactives makes sweet wormwood extract suitable for treating acne, inflammation, seborrhea, redness, and for revitalizing and strengthening the skin's barrier function.

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Benefits:

- Soothes irritated skin, reducing redness and swelling, making it ideal for sensitive skin.
- Provides antioxidant protection and reduces signs of aging.
- Brightens the skin and helps even out skin tone, reducing dark spots and hyperpigmentation.
- Intensely hydrates dry skin, leaving it soft and supple.
- Acts as an antimicrobial agent, effectively targeting bacteria, fungi, and viruses.
- Helps reduce acne, controls sebum production, and purifies pores.

Usage Guidelines: The extract is used at various concentrations depending on the type of product and desired effect. In facial toners or calming lotions, a 1–3% concentration is recommended for gentle care and soothing effects. For creams or hydrating serums designed for sensitive skin, concentrations of 3–5% are used to maximize antioxidant and anti-inflammatory benefits. Acne treatment products typically contain 2–4%, allowing for sebum control and inflammation reduction without irritating the skin. Brightening formulations use 1–2%, promoting even skin tone and reduction of dark spots. The extract should be added to the aqueous phase of the formulation at temperatures below 40°C to preserve efficacy and bioactivity. For external use only.

Safety Considerations: While Artemisia annua is known for its antimicrobial and anticancer properties, its safety in cosmetics is not fully studied. Therefore, there are no official recommendations for concentration limits in cosmetic formulations.

Animal Testing: Not tested on animals.

GMO Status: Non-GMO

Vegan: Contains no animal-derived ingredients.