ACTIFS PRÉCIEUX

NATURAL BIOACTIVE INGREDIENTS WITH IMPACT

APF 409

Rose Elixir

- Adapted to sensitive skin
- Reduce acne problems
- Lasting Skin hydration

PERSONAL CARE

Rose Elixir

Our ELIXIR ROSE range is an Acne fighting range due to the miraculous combination of Rosa Centifolia and Black Cumin.

APF 409-2

Rose Elixir Pure

APF 409-1

Rose Elixir Prime

Inflammation

- Inflammation is the immune system's response to a damage caused in cells or tissues by bacterial pathogens or by any other biological, chemical, physical or mechanical aggressor. Even though painful, inflammation is usually a repair response.

- The first step of inflammation is known as irritation. The stimulus or agent inducing this state of inflammation is an irritant compound. A big variety of materials are capable of causing an irritation response in the skin, including soaps, cosmetics, pesticides, organic dyes, solvents and industrial chemicals and waste.

- Skin irritation includes different events leading to the development of an inflammatory response at the site of exposure. Cytokines are a family of proteins and glycoproteins that regulate the inflammatory and immune response, most of them are produced by epidermal cells. These cytokines are soluble molecules acting as chemical mediators released during the process, which help to intensify and propagate the inflammatory response; frequently including TNF-α, CCL2/MCP-1, C-RP, IL-1, IL-6, INF-γ, DUOX1, CXCR4 (SDF1 receptor), histamine, IL-10, TGF-β, COX-2, PGE2, etc. [1-3]

- Although its role in the inflammatory process is complex, these molecules modulate the activity and function of other cells to coordinate and control the inflammatory response. It has been suggested that cytokines and chemokines can communicate with sensory nerves through activation of high-affinity receptors, involved in pain and inflammation. [4,5]

In Vitro study

Tumor necrosis factor alpha (TNFα) is a cell signalling protein (cytokine) involved in systemic inflammation and is one of the cytokines that make up the acute phase reaction. Its primary role is in the regulation of immune cells, being able to induce fever, apoptotic cell death, cachexia, inflammation and to inhibit tumorigenesis, viral replication and response to sepsis via IL-1 and IL-6 producing cells.

Interleukin 1 alpha (IL-1α) also known as hematopoietin 1 is a cytokine of the interleukin 1 family that in humans is encoded by the IL1A gene. In general, Interleukin 1 is responsible for the production of inflammation, as well as the promotion of fever and sepsis. It is considered as a potent inflammatory cytokine that activates the inflammatory process, and its deregulated signaling causes devastating diseases manifested by severe acute or chronic inflammation. It is expressed as a precursor and is found in normal keratinocytes of the skin. [6,7]

Interleukin 6 (IL-6) is a potent inflammatory cytokine that exhibits functional pleiotropy in numerous cell types. It mediates several important physiological functions, most notably the control of the acute phase response at the beginning of acute inflammation, regulation of B-cell and T-cell differentiation and activation, and support of cell growth and survival. In addition, the encoded protein has been shown to be an endogenous pyrogen capable of inducing fever in people with autoimmune diseases or infections. The functioning of this gene is implicated in a wide variety of inflammation-associated disease states. [8,9]

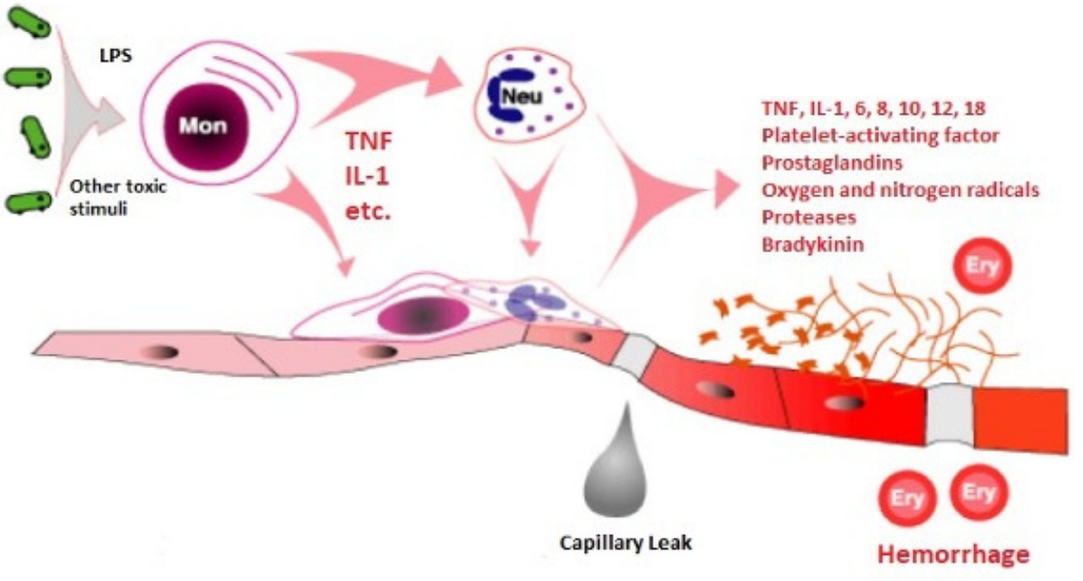


Fig. 1. Schematic representation about the inflammatory process triggered by LPS.

Goal of the study

The assessment of anti-inflammatory potential through inhibition of the LPS-induced (Bacterial Lipopolysaccharide) expression of 3 genes (TNFα, IL-1α and IL-6), directly involved in inflammatory pathways, after in vitro treatment on human keratinocytes (HaCaT) through RTqPCR quantification.

The inflammatory response will be induced by treatment with LPS (Bacterial Lipopolysaccharide), large molecules consisting of a lipid and a polysaccharide, found in the outer membrane of Gram-negative bacteria, able to elicit strong immune responses (Figure 1).

To determined the non-toxic and effective concentrations, Cell viability was first assessed in Human HaCaT keratinocytes through quantification by MTT assay.

Methodology

- HaCaT keratinocytes cells were treated with Rose Elixir at 0.1 % during 24 hours.
- After 30 minutes of treatment, Bacterial Lipopolysaccharide (LPS) was added at 100 ng/ml.
- After 24 hours of incubation period, total RNA was purified, quantified and it was used to synthesize complementary DNA (cDNA).
- This cDNA from treated or untreated cells (control) was used to determine the relative gene expression of TNFα, IL-1α and IL-6 through RT-qPCR. β-ACT was used as reference gene.
- Data were statistically analyzed.

APF 409

Rose Elixir

Rose Elixir Pure formula is a unique eco-designed complex, packed with key nutrients that are essential for a healthy skin. Rose Elixir Pure complex is an ideal mixture of Black Cumin, Rosa Centifolia and Aleppo Pine that act in synergy to fight acne problem and help nourishing and moisturizing the skin.

Innocuity - safety

- Single Patch Test: Non-irritant
- Good skin compatibility
- Dermatologically tested
- Tolerance Tested

Applications

- Anti-acne serums
- Regenerating serum
- Skin care products

Benefits

- Anti-acne potential
- Anti-inflammatory
- Antibacterial
- Antimicrobial
- Adapted to sensitive skin

Sourcing

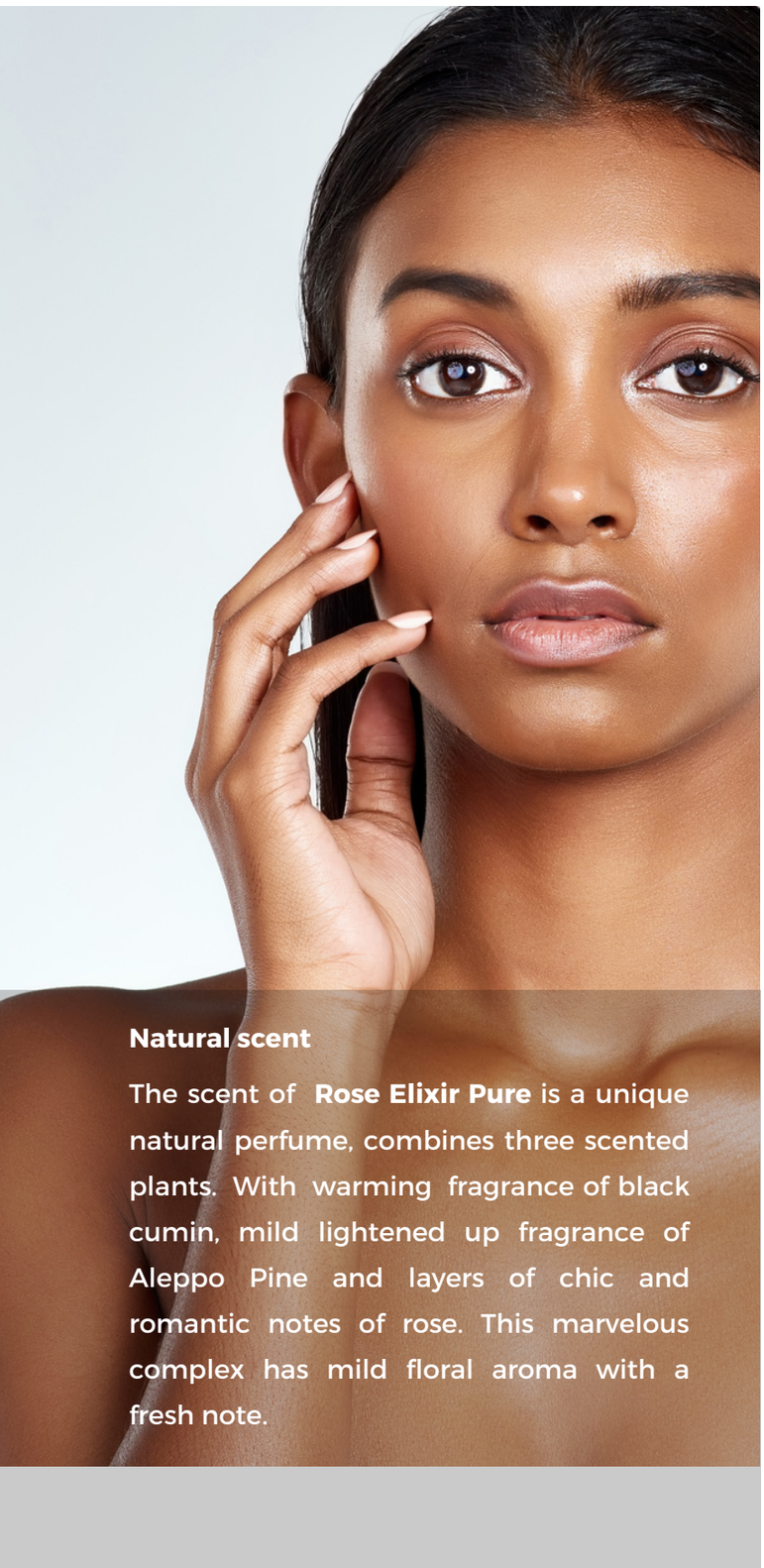
Vertically integrated each step of the sourcing and productionprocess.
By owning our own fils and partnering with growers specializing in naturals, and organic certified.

Production process

Supercritical carbon dioxide
Extraction- Formulation Technology.

APF 409-1

Rose Elixir Prime



Natural scent

The scent of **Rose Elixir Pure** is a unique natural perfume, combines three scented plants. With warming fragrance of black cumin, mild lightened up fragrance of Aleppo Pine and layers of chic and romantic notes of rose. This marvelous complex has mild floral aroma with a fresh note.

Raw material
Coriandrum Sativum Fruit, Rosa Centifolia and Nigella sativa

Origin

Cape Bon ("**Good Cape**") is a peninsula in far northeastern Tunisia and known in antiquity as the Cape of Mercury (Latin: Promontorium Mercurii).

INCI

Coriandrum sativum fruit extract (and) Caprylic/ Capric Tryglyceride (and) Nigella Sativa seed extract (and) Rosa Centifolia Flower Extract.

Preservation
Preservation free / self- preserving

Appearance
Yellow-Liquid oil

Solubility
Soluble in oil & alcohol, Insoluble in water

Use level
0,1-0,5 %

Processing
Can be added to the emulsion once the emulsion is formed at temperature below 50 °C.

Characteristics
Stable up to 80°C

Conformity with Cosmetic Regulations
EU ✓ USA ✓ JAPAN ✓ CHINA ✓

Naturality ISO 16128
CN= 100 % , Cno= 100 % , Co= 100 % , Coo= 100 %

Cosmos possible

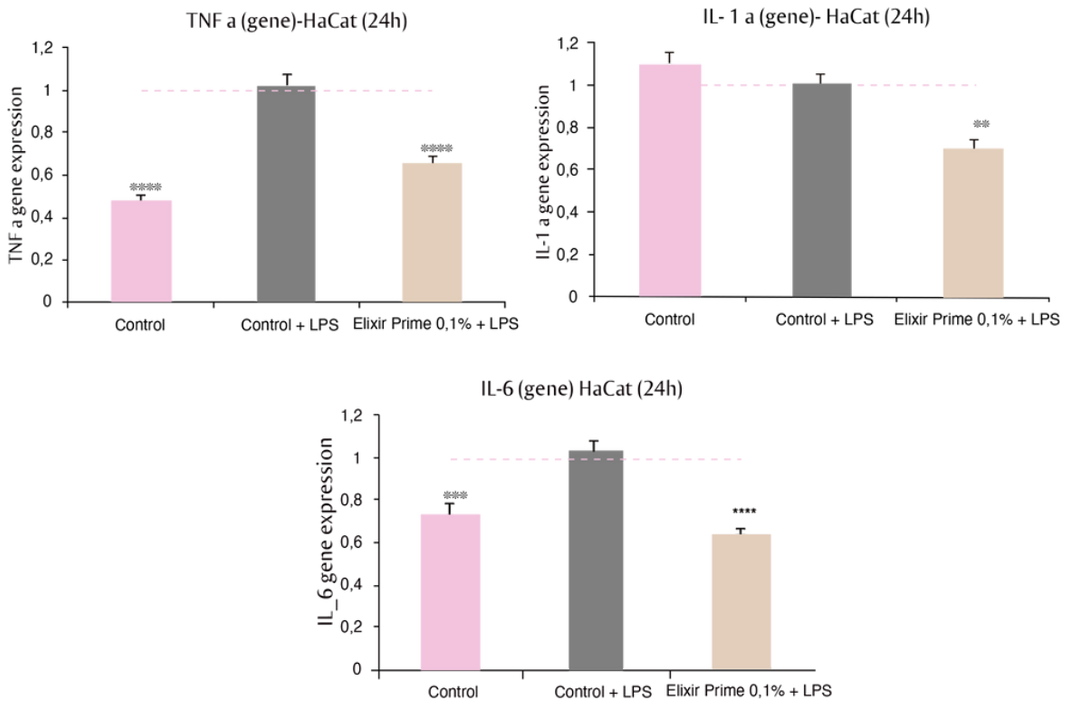
REACH Status
Exempt

Specific Statements

BSE free ✓ GMO free ✓ Animal Testing Free ✓
Nanomaterials free ✓ Residual solvents Free ✓
VEGAN ✓

In vitro tested efficiency

Results indicated that the treatment with Rose Elixir Prime at 0.1 % significantly inhibited gene expression of TNFα, IL-1α and IL-6 by 36.5 ± 6.1 %, 30.5 ± 5.9 % and 41.1 ± 8.5 %, respectively, compared to the untreated control.



Bar graphs showing TNFα, IL-1α and IL-6 gene expression results after treating human keratinocytes (HaCaT) with Elixir Prime at 0.1 %, compared to Control + LPS.
** Represents statistical significance with p value < 0.01.
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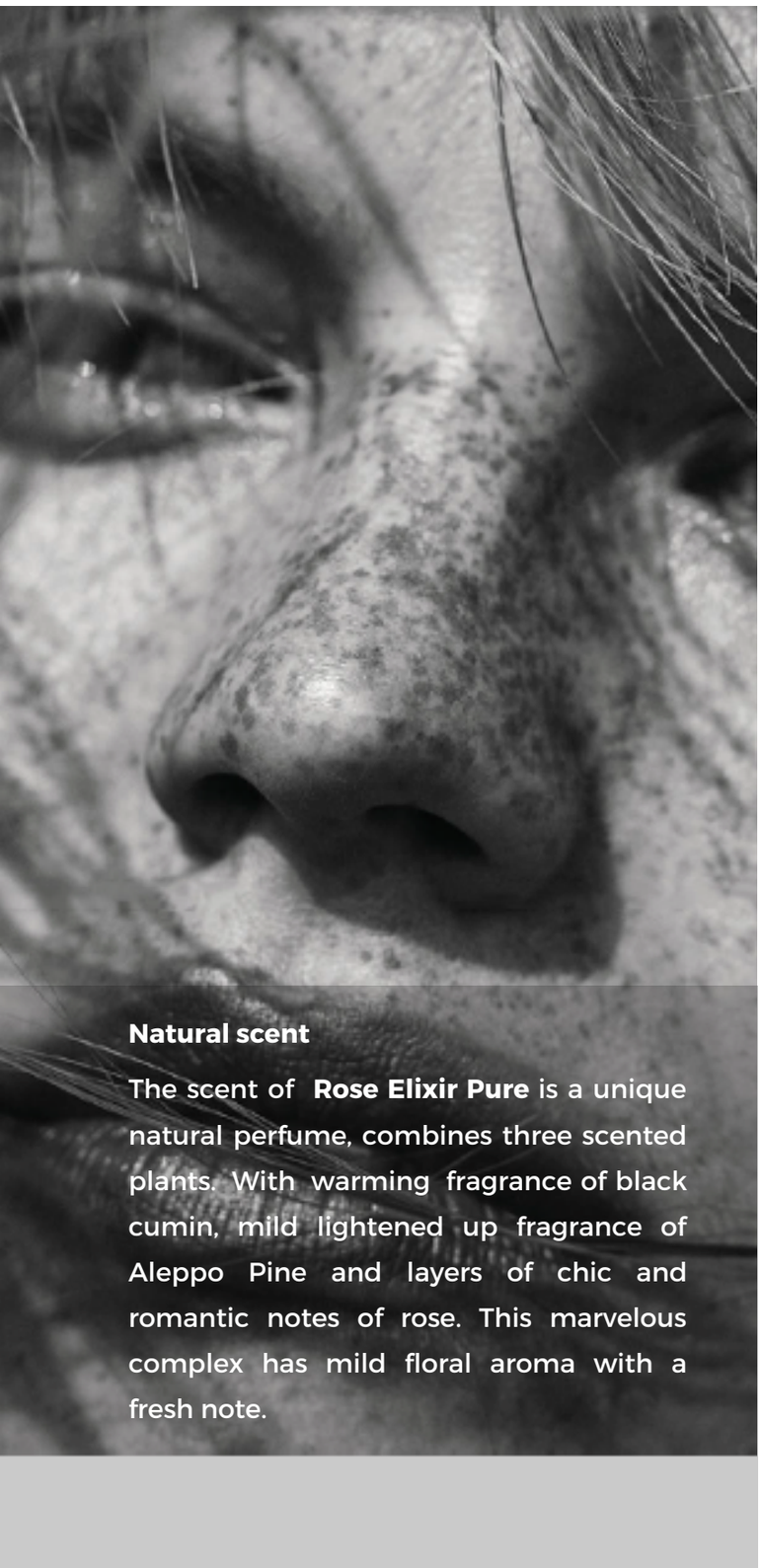
The **in vitro treatment** with **Elixir Prime** during 24 hours **in human keratinocytes (HaCaT), displays anti-inflammatory effects, through significant reduction of Tumour Necrosis Factor alpha (TNFα), Interleukin 1 alpha (IL-1α) and Interleukin 6 (IL-6)** gene expression, after induction with bacterial lipopolysaccharide (LPS), compared to the untreated control.

APF 409-2

Rose Elixir Pure



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Raw material
Pinus Halepensis Seeds, Rosa Centifolia and Nigella sativa

Origin
Cape Bon ("**Good Cape**") is a peninsula in far northeastern Tunisia and known in antiquity as the Cape of Mercury (Latin: Promontorium Mercurii).

INCI
Pinus Halepinsis Seed Oil (and) Caprylic / Capric Tryglyceride (and) Nigella Sativa seed extract (and) Rosa Centifolia Flower Extract.

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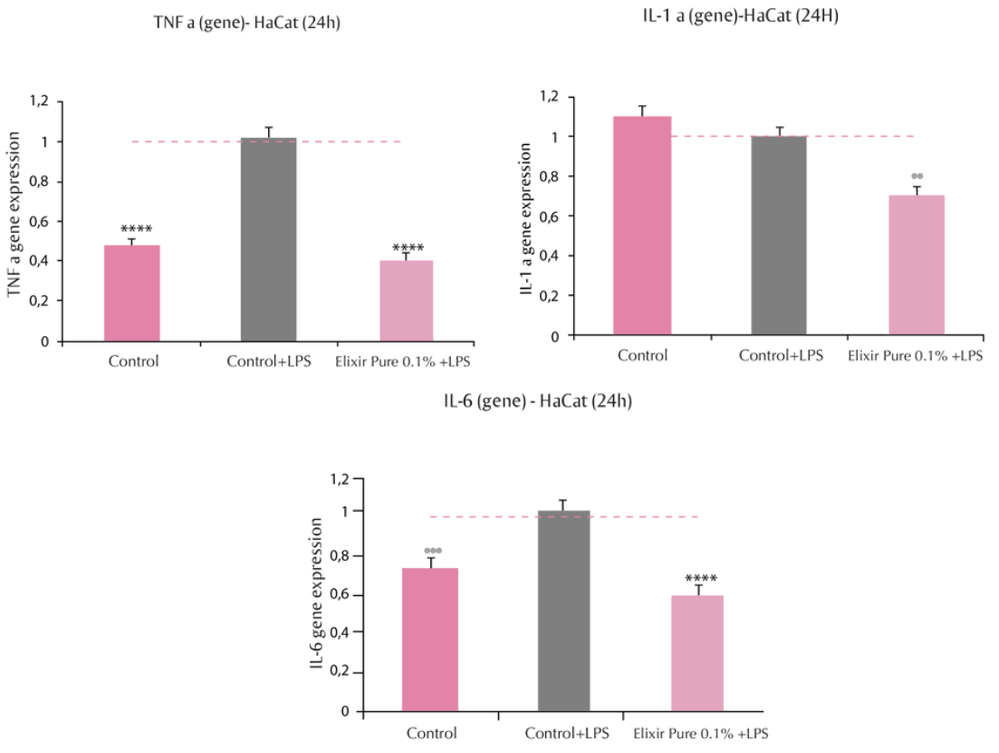

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About Actifs Precieux

Actifs Precieux delivers natural solutions for functional food, health and wellness products. High-quality botanical actives and extracts. As a pioneer in supercritical technology in Africa, Actifs Precieux has gained a key expertise on a specific ecosystem: African and Mediterranean Medicinal Plants.

WE OFFER TAILORED PRODUCTS TO MEET YOUR SPECIFIC REQUIREMENTS AND SUPPORT YOU IN YOUR QUALITY

Manufacturings of botanicals in Zriba, Tunisia

Great flexibility

Aware of the requirements of our clients, we respond to the most varied requests. We adapt to our customers, not the way around.

Naturalness

Organic or conventional,
we provide **100% natural ingredients** based on the **ISO 16128 guidelines**.

Quality

Surrounded by trusted partners, each expert in their field, Actifs Precieux guarantees quality, traceability and safety of its ingredients.

Analysis

Analysis & strict controls
performed internaly or with accredited and independent laboratories

Regulatory

We assure the compliance of our products to international regulation and provide regulatory support to our customers.

Our Green Technology

WORKING AREA : 31 – 60°C / 74 - 600 BAR

Our Innovative Green technology operates at very high pressure up to 600 bars, which makes it possible to extend the fields of application with a capacity ranging from pilot to industrial scale.

Supercritical fluid extraction (SFE) is the process of separating one component from another using supercritical fluids as the extracting solvent. In the supercritical state, over 74 bar and 31 ° C, CO2 has specific properties. The fluid obtained is characterized by a high diffusivity, the order of gases, and a high density which endows it with a high transport and extraction capacity.

Supercritical fluid extraction (SFE)

The modulation of CO2 solvent power on the function of the temperature and pressure is the basis of the Supercritical CO2 technology.

For example:

- Extraction of volatile compounds from a plant at low pressures (100 bar).
- Extraction of lipo-active compounds from a plant at high pressure.

Pioneer In Supercritical Fluid High-Pressure Technology In Africa

As a pioneer in Supercritical Technology in Africa, Actifs Precieux has gained a key expertise on a specific ecosystem: African and Mediterranean Medicinal Plants.

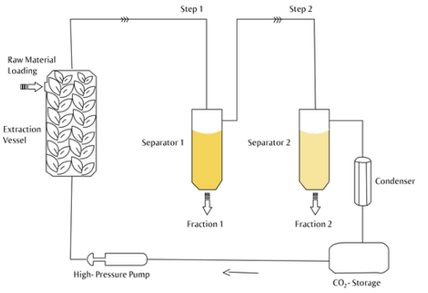
Technology Advantages

- Inert atmosphere.
- Moderate temperatures conditions.
- Absence of harmful solvents and oxygen.
- Finished products without residues.
- Effective and selective extractions.
- Generation of different fractions in a process.
- Achievements of high yields.
- Immediate application of all fractions

Low carbon footprint
Valorization of local farmers
Transparent and sustainable supply chains

Extract Specifications

- Longer shelf life
- High stability
- Low dosage levels
- Residue & toxins free
- Simple clean label declaration
- Eco-friendly process



Harvest → Raw material preparation → CO2 Supercritical

The advantages of using this type of extracts are indisputable for the following reasons:

- **These extracts don't require preservatives**

Fat-soluble extracts are stable.

- **They are highly concentrated**

This allows savings in application, as only a small dose is needed to obtain maximum effectiveness in the cosmetic formulation.

- **They are very eco-friendly**

As no emissions are generated during the extraction process, these extracts are sustainable. In addition, there are no traces of solvents, additives, metal catalysts or heavy metals.

- **The aromas these extracts produce are more natural**

This type of extraction allows high yields to be obtained, achieving the maximum concentration of "aromatic" substances. The odour obtained is therefore very close to that of the original plant or raw material used for the extraction.

- **They have a longer useful life**

There is no degradation over time, as extraction at low temperature and free of oxygen prevents degradation and/or oxidation of the oils.

CO2 - Extraction Technology Tailor-made Solutions

We answer to your needs faster and smarter

Our focus is the development of sustainable natural ingredients for our customers.
We deliver solutions that are perfectly adapted to all your needs and expectations. We can carry out all the steps from the sourcing of the raw materials to the marketing of the ingredient. We support you all the way through to the validation of ingredient efficacy.

- 3600 m2
- Pilot unit 5L/ 600 bar
- Development unit of 60L/ 600 bar
- Industrial unit of 260*2 L/ 600 bar
- Processing capacity of 600T/year

Thanks to our SFE technology , we are able to offer our clients in the natural cosmetics sector a supercritical CO2 extract that is purer than all the others on the market. While other use additives to speed up the extraction process, our solution is the purest for two reasons:

- **Refined extraction technology**

The addition of additives – such as alcohol or solvents – is not necessary in order to make the extraction process profitable. Our supercritical CO2 extract is capable of performing this process based solely on CO2 and can even obtain superior results without having to turn to said additives.

- **In-depth knowledge of raw materials**

Botanical information on all kinds of flowers and plants is essential to being able to offer our clients the best results from each extraction, thereby obtaining much greater product proportions. This can be achieved because at Actifs Precieux we offer our clients co-extracts (the active substances of a raw material act as solvents for the other such that the purest extracts possible are obtained).

Product Range

Actives & Botanicals for Cosmetic Applications

ACTIVES

Active extracts: containing the “active” fractions of the raw material.

- Proven efficacy with in vitro and /or in vivo
- Combination of defined plant active ingredients

TOTAL EXTRACTS

Total extracts: are extracted under higher pressure and contain more of the original plant components including, fatty oils and color pigments. CO2 soluble lipophilic ingredients. Which can contain all lipid components, including waxes or unsaponifiable fractions, or if desired, only the native vegetable oils of the raw material.

SELECT EXTRACTS

Select extracts : are extracted under lower pressure and are similar to essential oils in that they are generally completely liquid, making them easier to use when pipetting or diluting the formulation. Supercritical CO2 select extract reveals particular olfactive effects.

- Our gentle extraction method preserves the sensitive top notes.
- Our CO2 extracts unfold new fragrance effects.
- CO2 extracts give fragrances an extraordinary note and add valuable effects.