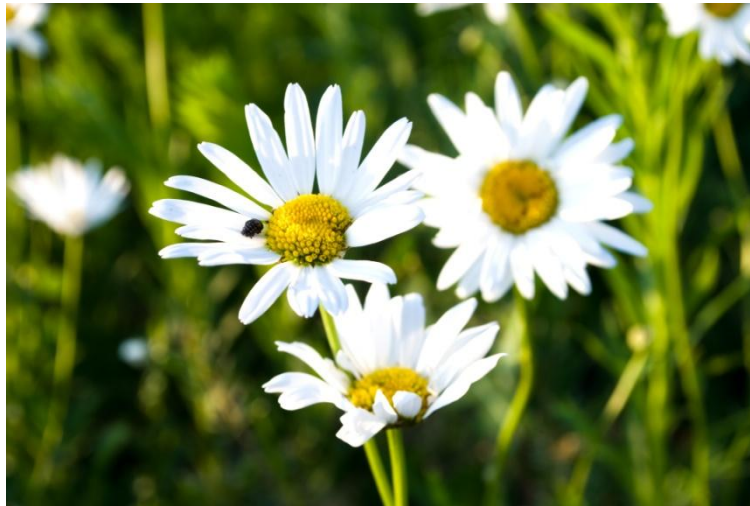


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# HerbEx Chamomile Extract

**Anti-Inflammatory**

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## TABLE OF CONTENTS

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<b>1. GENERAL DESCRIPTION .....</b>	<b>3</b>
1.1. Summary.....	3
1.2. Matricaria chamomilla .....	3
<b>2. COMPOSITION OF HerbEx Chamomile Extract .....</b>	<b>4</b>
<b>3. IN VITRO EFFICACY EVALUATION .....</b>	<b>5</b>
3.1. Anti-Inflammatory Activity.....	5
<b>4. PRACTICAL HINTS.....</b>	<b>7</b>
<b>5. PRODUCT INFORMATION .....</b>	<b>7</b>
5.1. INCI Name .....	7
5.2. % Breakdown.....	7
5.3. Recommended Use Level.....	7
5.4. How to Get the Most of HerbEx Chamomile Extract.....	7

## 1. GENERAL DESCRIPTION

### 1.1. Summary

- HerbEx Chamomile Extract soothes skin rashes (including eczema), minor burns and sunburn.
- HerbEx Chamomile Extract normalizes skin functions and reduces inflammation.
- HerbEx Chamomile Extract has value as an active ingredient in skin lotion, cream and gels.

### 1.2. *Matricaria chamomilla*

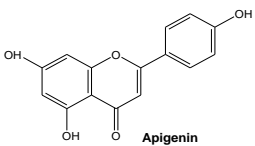
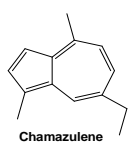
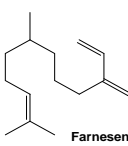
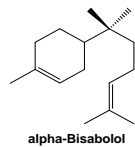
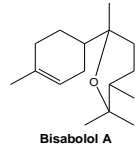
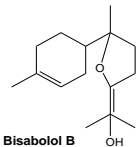
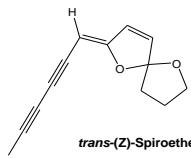
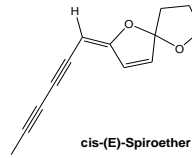


*Matricaria chamomilla*, commonly referred to as the chamomile plant, is a member of the Asteraceae (Aster family), and is native to Europe and Western Asia. It is an annual herb that has escaped to the wild and is now naturalized on almost every continent.

Chamomile is widely used throughout the world. Its primary uses are as a sedative, anxiolytic and antispasmodic, and as a treatment for mild skin irritation and inflammation. Chamomile's main active constituents are chamazulene, apigenin, and bisabolol which have a soothing effect on the skin, anti-inflammatory. Despite its widespread use as a home remedy, relatively few trials have evaluated chamomile's many purported benefits.

Chamomile is used externally for wounds, ulcers, eczema, gout, skin irritations, neuralgia, sciatica, rheumatic pain, hemorrhoids, mastitis, and leg ulcers. Additionally, it is used externally to treat diaper rash, cracked nipples, chicken pox, poison ivy and conjunctivitis, and as a hair tint and conditioner. The German Commission E has approved chamomile for external use for inflammation of the skin, mucous membranes and ano-genital area, bacterial skin diseases including those of the oral cavity and gums, and respiratory tract inflammation.

## 2. COMPOSITION OF HerbEx Chamomile Extract

INCI NAME	PROPERTIES
Flavonoid (Apigenin), Terpenoids and acetylene-derivatives <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Apigenin</p> </div> <div style="text-align: center;">  <p>Chamazulene</p> </div> <div style="text-align: center;">  <p>Farnesene</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;">  <p>alpha-Bisabolol</p> </div> <div style="text-align: center;">  <p>Bisabolol A</p> </div> <div style="text-align: center;">  <p>Bisabolol B</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;">  <p>trans-(Z)-Spiroether</p> </div> <div style="text-align: center;">  <p>cis-(E)-Spiroether</p> </div> </div>	Anti-inflammation Anti-bacterial activity Anti-fungal activity Wound healing Anti-allergic Anti-septic COX1-inhibitor COX2-inhibitor Estrogenic

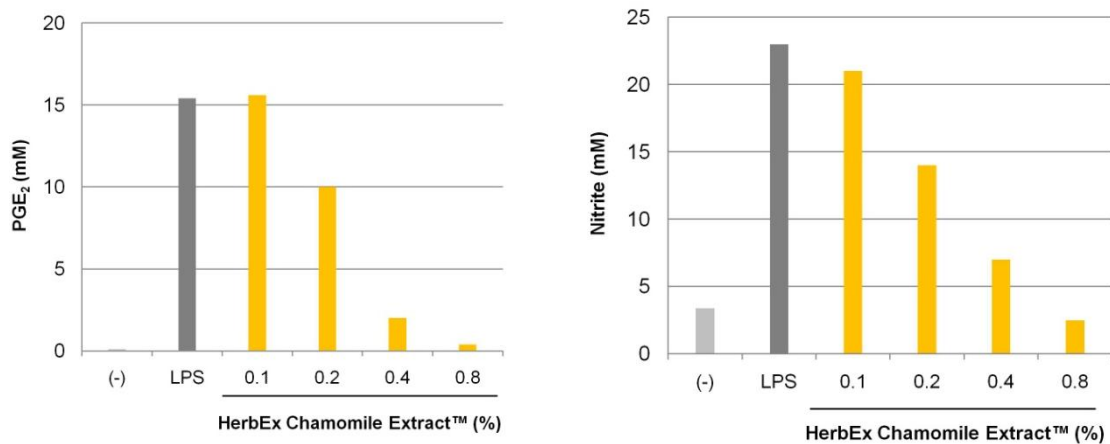
### 3. IN VITRO EFFICACY EVALUATION

#### 3.1. Anti-Inflammatory Activity

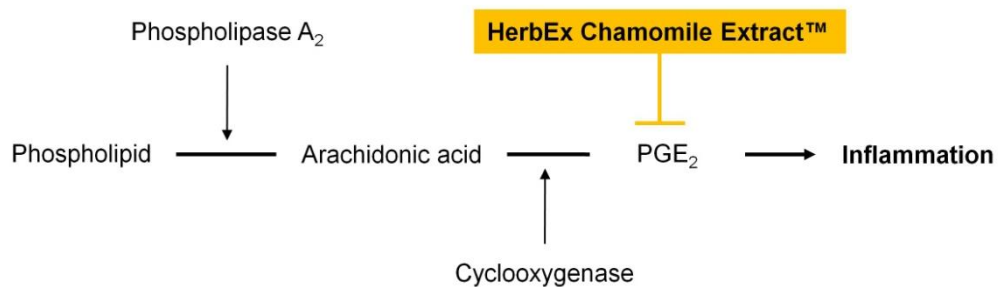
##### 3.1.1. PGE<sub>2</sub> & NO Production

RAW 264.7 cells (mouse macrophage cells) were seeded into 12-well plates at the density of  $1 \times 10^5$  cells per well. The cells were stimulated by LPS (50 ng/ml) with or without HerbEx Chamomile Extract for 24 h, The prostaglandin E<sub>2</sub> (PGE<sub>2</sub>) and nitric oxide (NO) released in the medium was determined by EIA (Cayman) and Griess reaction assay.

As a result, HerbEx Chamomile Extract showed anti-inflammatory effect through inhibiting PGE<sub>2</sub> and nitrite production.



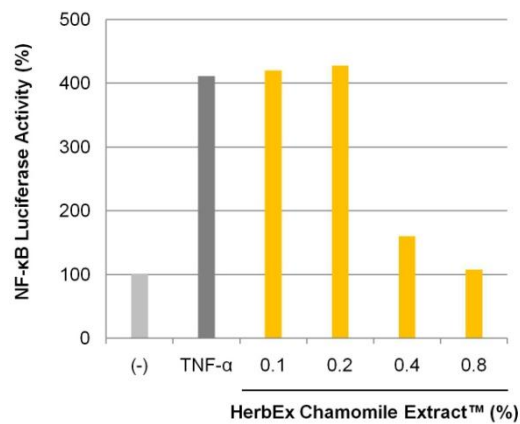
'Mode of action' of HerbEx Chamomile Extract inhibiting PGE<sub>2</sub>.



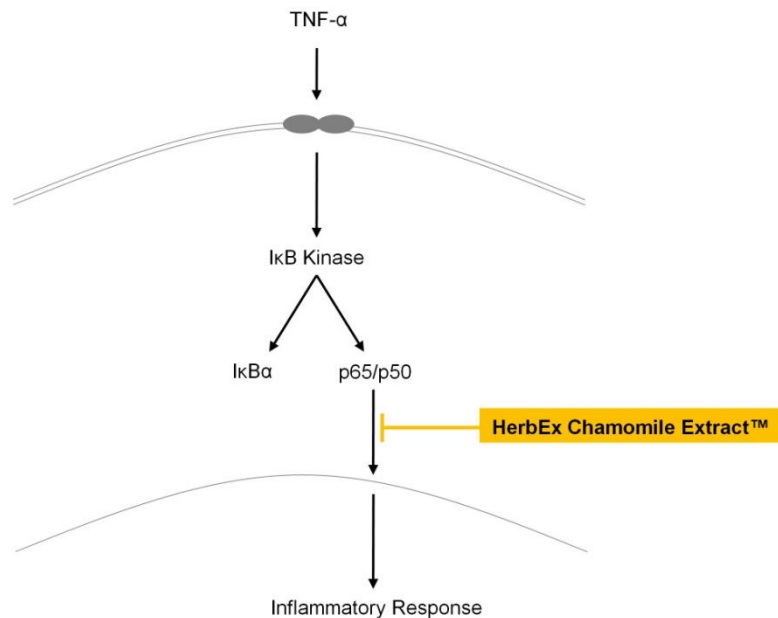
### 3.1.2. NF-κB Activity

THP-1 cells (human monocytic leukemia cells) were transiently transfected with 2 μg of the firefly luciferase reporter gene under the control of NF-κB responsible elements (Stratagene). After 24 hrs, the cells were further cultured in the presence of or absence of HerbEx Chamomile Extract for 5 hrs. Luciferase activity were determined using a Dual Luciferase Assay system (Promega) and a LB953 luminometer (Berthold, Germany).

As a result, HerbEx Chamomila Extract has anti-inflammatory activity via reducing NF-κB activity.



'Mode of action' of HerbEx Chamomile Extract inhibiting activity of NF-κB.



## 4. PRACTICAL HINTS

## 5. PRODUCT INFORMATION

### 5.1. INCI Name

- ♦ Butylene Glycol, Water, Chamomilla Recutita (Matricaria) Flower Extract

### 5.2. % Breakdown

FDA Code	INCI Name
A (≥50%)	Butylene Glycol
B (25 ~ 50%)	Water
C (10 ~ 25%)	-
D (5 ~ 10%)	-
E (1 ~ 5%)	Chamomilla Recutita (Matricaria) Flower Extract
F (0.1 ~ 1%)	-
G (<0.1%)	-

### 5.3. Recommended Use Level

- We are confident in recommending HerbEx Chamomile Extract as an effective ingredient of cosmeceuticals for skin problems due to inflammation such as rash. In addition, HerbEx Chamomile Extract™ can be an ingredient of cosmetics for eczema, minor burn and sunburn, for a wide range of product types, from skin care to shampoos and from creams to gels etc.
- Usage levels may vary from 1% to 5%, depending on the formulation, the typical usage level averages around 2%.

### 5.4. How to Get the Most of HerbEx Chamomile Extract

- Do not add HerbEx Chamomile Extract to the formulation at temperature above 55°C, where there is a heating stage it is recommended to add after the cooling process.
- If possible, avoid any strong oxidizers and UV or direct light.

**Specialty cosmetic actives from GREEN nature**  
**World leading GREEN manufacturing and technology**  
**Heartfelt GREEN satisfaction to customers**

