18-β Glycyrrhetinic Acid

Anti-Irritant
Skin Conditioning
Flavor Masking

McKinley Resources, Inc.
18-β Glycyrrhetinic Acid

INCI Name: Glycyrrhetinic Acid
CAS Number: 471-53-4

Description:
Glycyrrhetinic acid, also known as enoxolone, is isolated from the licorice plant, Glycyrrhiza glabra. Its anti-inflammatory activity (via inhibition of TNF-α production and histamine release) provides natural skin soothing benefits. It is also widely used as a flavoring agent and is frequently employed to mask the taste of bitter ingredients such as aloe and quinine.

Technical Data:

<table>
<thead>
<tr>
<th>Test/Properties</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>White to off-white crystalline powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight characteristic odor</td>
</tr>
<tr>
<td>Loss on Drying, %</td>
<td>≤ 1.0</td>
</tr>
<tr>
<td>Melting Point, °C</td>
<td>288 - 297</td>
</tr>
<tr>
<td>Residue on ignition, %</td>
<td>0 - 0.1</td>
</tr>
<tr>
<td>Glycyrrhetinic Acid Content, %</td>
<td>98.0 - 101.0</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in ethanol, insoluble in water</td>
</tr>
<tr>
<td>Heavy Metals (as Pb), ppm</td>
<td>≤ 20</td>
</tr>
</tbody>
</table>

Recommended Use Level: 0.5% to 1.0%

Applications:
18-β Glycyrrhetinic Acid can be used in a wide variety of cosmetic products including those for skin soothing, after-sun care, after shave, and more. It can also be used for flavoring.
In-vitro 18-β Glycyrrhetinic Acid testing on anti-inflammatory effect

Tumor necrosis factor alpha (TNF-α) is a cell signaling protein involved in inflammation. In this study, macrophages were pretreated with licorice root-derived compounds—glycyrrhizin, dipotassium glycyrrhizate (DPG), or 18-β glycyrrhetinic acid (18-β GA)—for 30 minutes and then treated with 100 ng/mL LPS (to induce an “inflammatory response”) for 24 hours. TNF-α concentration was then measured by ELISA.

Of the three compounds, 18-β Glycyrrhetinic Acid showed the strongest dose-dependent suppression of LPS-induced TNF-α production.

In-vitro 18-β Glycyrrhetinic Acid testing on anti-inflammatory effect

Nuclear Factor kappa B (NFκB) is a protein complex that can regulate the production of pro-inflammatory compounds. Nuclear translocation of NFκB is an indication of its activation. In this study, HEK293 cells were pretreated for 30 minutes with glycyrrhizin, dipotassium glycyrrhizate (DPG) or 18-β glycyrrhetinic acid (18-β GA) and then treated with 1 ng/mL LPS for 24 hours to induce an “inflammatory response”.

Of the three compounds, 18-β Glycyrrhetinic Acid demonstrated the greatest reduction in NFκB nuclear translocation which is associated to anti-inflammatory potential.

In-vivo 18-β Glycyrrhetinic Acid testing on anti-inflammatory effect

This study examines the anti-inflammatory activity of glycyrrhizin, dipotassium glycyrrhizinate (DPG), and 18-β glycyrrhetinic acid (18-β GA) toward TPA-induced edema of the ear.

Each compound was applied at 250 ug/ear or 500 ug/ear. After 30 minutes, TPA was applied (to induce an “inflammatory response”). Edema was evaluated after 7 hours.

At 500 ug, 18-β Glycyrrhetinic Acid suppressed edema by over 55%.