

# SELECT BOTANICAL

## AMMONIUM GLYCYRRHIZATE

### Technical-Scientific report

#### GENERAL INFORMATION

Select Botanical, SL manufactures highest quality extracts following strictest Quality Management System in compliance with the "Good Manufacturing Practices" requirements, carrying on the last manufacturing steps in classified areas (Clean Rooms).

Select Botanical, SL assures the traceability with rigorous analysis from raw material to finished product.

#### Definition:

Mixture of ammonium 18 $\alpha$ - and 18 $\beta$ -glycyrrhizate (ammonium salt of (20 $\beta$ )-3 $\beta$ -[[2-O-( $\beta$ -D-glucopyranosyluronic acid)- $\alpha$ -D-glucopyranosyluronic acid]oxy]-11-oxoolean-12-en-29-oic acid), the 18 $\beta$ -isomer being the main component.

#### SPECIFICATIONS/ TECHNICAL CHARACTERISTICS

(According to the current monograph "Ammonium Glycyrrhizate" of the European Pharmacopoeia)

Description:	White or yellowish-white, hygroscopic powder
Solubility:	According to monograph
Identification:	According to monograph
Specific optical rotation:	+49.0 to +54.0
Appearance of solution:	According to monograph
Related substances:	18 $\alpha$ -glycyrrhizic acid: $\leq$ 10.0 % Impurity A: $\leq$ 5.0 % Any other impurities: $\leq$ 2.0 % Sum of other impurities: $\leq$ 7.0 %
Water:	$\leq$ 6% w/w
Sulphated ashes:	$\leq$ 0.2 % w/w
Heavy metals:	$\leq$ 20 ppm
Residual solvents:	Ethanol: $<$ 1% w/w
Assay (Potentiometry):	98.0-102.0 % (anhydrous subst.)

#### INFORMATION ABOUT MANUFACTURING PROCESS

Ammonium Glycyrrhizate is obtained from the licorice root (*Glycyrrhiza glabra* L.) by extraction and purification methods.

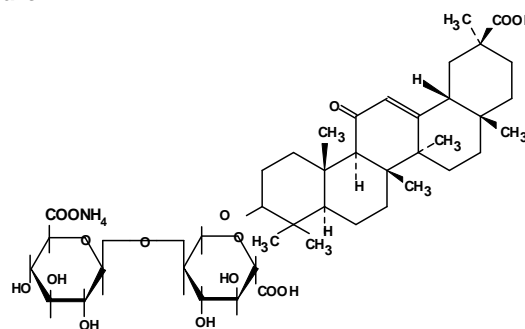
#### PRODUCT PROPERTIES

- sb** Solubility: slightly soluble in water (soluble in hot water). Very slightly soluble in anhydrous ethanol, practically insoluble in acetone. Soluble in hydroalcoholic mixtures. Soluble in glycerin and propylene glycol.
- sb** Taste: Sweet taste (33-200 times sweeter than sucrose).

#### REGULATORY INFORMATION AND DESCRIPTION

**CAS:** 53956-04-0  
**EINECS:** 258-887-7  
**INCI/ UE:** Ammonium Glycyrrhizate

#### Structure:



**Molecular formula:** C<sub>42</sub>H<sub>65</sub>NO<sub>16</sub>

**Relative molecular weight:** 840

# AMMONIUM GLYCYRRHIZATE

## Technical -Scientific report

### PROPERTIES

**sb** Anti-inflammatory activity: Ammonium Glycyrrhizate exhibits anti-inflammatory activity due to Glycyrrhizic Acid, the active component. Glycyrrhizic Acid inhibits the activity of the phospholipase A<sub>2</sub> that plays an important role in various inflammatory processes. Moreover, Glycyrrhizic Acid inhibits cyclooxygenase activity and the formation of prostaglandins. (1, 2, 3)

Also, inhibits in vitro the hyaluronidase, which is active during inflammation. (7)

**sb** Smoothing and calming

**sb** Skin conditioning

**sb** Flavouring substance:

Ammonium glycyrrhizate is listed either Food Chemical Codex or Codex Alimentarius.

Europe: Commission Decision 1999/214/EC, Ammonium Glycyrrhizate is included in the Community Register of flavouring substances used in or on foodstuffs drawn up in application of Regulation (EC) N° 2232/96 of the European Parliament and of the Council of 28 October 1996.

USA: Food and Drug administration (FDA) includes licorice and licorice derivatives (Monoammonium Glycyrrhizinate) on its list of substances considered Generally Recognized as Safe (GRAS) (21 CFR Parts 184 GRAS-Status of licorice and licorice derivatives).

### PRODUCT APPLICATIONS

Due to the sweet taste of the product, Ammonium Glycyrrhizate can be formulated in tablets, toothpaste, lip balms and other products to mask unpleasant flavours.

#### Topical use:

**sb** Anti-inflammatory. (1,5)

**sb** Anti-seborrheic. (8)

Indicated in the treatment of:

**sb** Inflammations of skin as wounds, eczema and burns. (1,5)

**sb** Greasy hair.

**sb** Gingival inflammations.

Ammonium Glycyrrhizate is an active ingredient for skin care, baby care and body care products. It can be formulated also in dental hygiene products.

#### Undesirable effects:

There are neither reported toxic effects nor intolerance phenomenon to normal use doses.

On prolonged use and higher doses sodium and water retention and potassium loss may occur, accompanied by hypertension, edema and hypokalemia. (4)

#### Precautions / Contraindications:

People suffering from hypertension should avoid excessive consumption. (9)

Ammonium Glycyrrhizate should not be used during pregnancy and lactation without medical advice. (4,6)

### BIBLIOGRAPHY AND OTHER REFERENCES SOURCES

1. Cañigueral, S., Vila, R., Wichtl, M. Plantas medicinales y drogas vegetales para infusión y tisana. OEMF international srl. Milán 1998.
2. Chandler, R.F., Keller, K, Smet, D. "Glycyrrhiza glabra". Adverse effects of Herbal Drugs, Vol. 3. Springer-Verlag. 1997.
3. Okimasu, E, Moromizato, Y., Watanabe S. "Inhibition of phospholipase A<sub>2</sub> and platelet aggregation by glycyrrhizin, an antiinflammation drug". Acta Med. Okayama 37, (5), 385-391 (1983).
4. Blumental/Goldberg/Brinckmann. Herbal Medicine. Expanded Commission E Monographs. 2000.
5. Dweck, A.C. "Botanicals-Research of Actives". Cosmetics & Toiletries magazine. Vol 111, January 1996.
6. Newall, A. C. Anderson, L. A., Phillipson, D. J. Herbal Medicines. The Pharmaceutical Press. 1996.
7. Furuya, T., Yamagata, S., Shimoyama, Y., Fujihara, M. "Biochemical characterization of glycyrrhizin as an effective inhibitor for hyaluronidases from bovine tests". Biol. Pharm. Bull. 1997. Sep;20 (9):973-7.
8. Koerbaecher, Klaus, Cosmetic Composition, especially for hair treatment. Ger. Offen. 2.626.349, 23 Dec 1976.
9. Opinion of the scientific committee on food on glycyrrhizic acid and its ammonium salt. SCF/CD/ADD/EDUL/225 Final. 10 April 2003.



sb select botanical

Information contained in this Technical Scientific Report is believed to be accurate and is offered in good faith for the benefit of the user of the product. Select Botanical, SL cannot assume any liability or risk involved in the use of its products since the conditions of the use are beyond our control. The user of our product is responsible for compliance with all legal regulations applying to the use of our products, including patent laws.

Revision: 01  
January 2014