

# GLYTTINON™

Licorice



## 1. Introduction

Licorice is one of the oldest medical herbs, and is now more popular than ever. It was identified in a book edited by Hippocrates in about the 5th Century BC, and since then it has been included in pharmacopeias worldwide

Licorice is an extremely popular plant for combination use in KAMPO. There are currently about 212 combinations used in KAMPO, with Licorice used in about 70%, substantially more than in other medical plants.

The main active component is glycyrrhizin, a tri-terpenoids saponin. This sweetener is about 150- to 300-times sweeter than sugar. In addition, glycyrrhizin has the effect of reducing saltiness and is therefore used as a sweetener for soy sauce, Japanese pickles, and in processing fish for food. Glycyrrhizin and its derivatives are now in wide use, from pharmaceuticals to food. In the pharmaceutical field, medicines containing Licorice are used for chronic hepatitis, allergies, and cold. Other usages, including as a quasi-drug and in cosmetics, are popular in everyday life.

## 2. Constituents of Licorice

### ● Triterpenoids

Glycyrrhizic acid

24-Hydroxy glycyrrhetic acid diglucuronide

Liquiritinic acid diglucuronide

### ● Flavonoids

Liquiritin

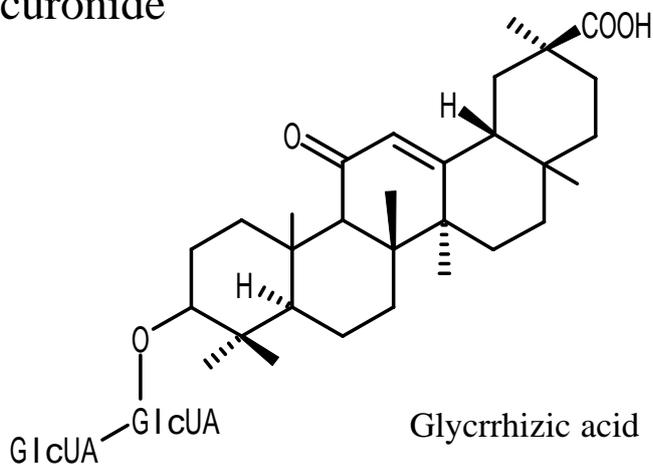
Liquiritigenin

Licoricidin

### ● Chalcones

isoliquiritin

isoliquiritigenin



### 3. Usage as sweetener of Glycyrrhizin

Since Glycyrrhizin, an active compound in Licorice, has about 200- to 300-times the sweetness of sugar, the effect is to strengthen the sweet taste of food. Also, since the compound also has an effect of softening salty tastes, another use is as to suppress the salty taste in foods such as soy sauce, Japanese pickles, and processed fish. In general, the dosage of glycyrrhizin as a food additive is 0.002~0.01%.

Another usage is to strengthen the flavor of foods.

### 4. Usage as medicine of Glycyrrhizin and derivatives

Since Glycyrrhizin has aldosterone-like activity, many physiological functions have been suggested (see below).

- Estrogen-like activity
- Anti-inflammatory activity
- Anti-allergic activity
- Anti-viral activity
- Improvement of chronic hepatitis, etc.

Medicines containing these components are thus used for the treatment of chronic hepatitis, allergy and athlete's foot. In terms of product form, these agents are available as injections, tablets, capsules, ointments, and eye drops.

### 5. Usage as cosmetics of Glycyrrhizin and derivatives

Glycyrrhizin and its salt and Glycyrrhetic acid, an aglycone form of Glycyrrhizin, have many functions in cosmetics (as follows).

- Anti-inflammatory effects
- Anti-allergic effects
- Promotion of fibroblast effects
- Granulation formation effects
- Production of antibody effects, etc.

Using these functions, final cosmetic products have been developed and are in wide use by many people. Most cosmetic products include these agents to prevent skin inflammation by other chemical substances

## 6. Licorice Products list

|                | Product Name   | Specification | Use   |
|----------------|--|---------------|---|
| Pharmaceutical | <b>GLYTINON</b><br>(Glycyrrhizinic acid)                   | UV98.0%       | Anti-inflammatory, Anti-allergy<br>Tablet               |
|                | <b>GLYTINON A</b><br>(Mono ammonium glycyrrhizinic acid)   | HPLC85.0%     | Improvement for chronic hepatitis<br>Injection, Tablet  |
|                | <b>GLYTINON K2</b><br>(Dipotassium glycyrrhizinic acid)    | JPC           | Anti-inflammatory, Anti-allergy<br>Cream, Gel           |
|                | <b>AGYTINON</b><br>(Glycyrrhetic acid)                     | JPC           | Anti-inflammatory, Anti-allergy<br>Cream, Gel, Ointment |
| Cosmetic       | <b>GLYTINON 98</b><br>(Glycyrrhizinic acid)                | JSQI          | Anti-inflammatory<br>Cream, Gel                         |
|                | <b>GLYTINON A98</b><br>(Mono ammonium glycyrrhizinic acid) | JSQI          | Anti-inflammatory<br>Cream, Gel                         |
|                | <b>GLYTINON K2</b><br>(Dipotassium glycyrrhizinic acid)    | JSQI          | Anti-inflammatory<br>Cream, Gel                         |
|                | <b>AGYTINON</b><br>(Glycyrrhetic acid)                     | JSQI          | Anti-inflammatory<br>Cream, Gel                         |
|                | <b>AGYTINON STEARYL</b><br>(Steary glycyrrhetic acid)      | JSQI          | Anti-inflammatory<br>Cream, Gel                         |
|                | <b>CARBENOXOLONE</b><br>(Carbenoxlone disodium)            | JSQI          | Anti-inflammatory<br>Cream, Gel                         |
| Food           | <b>GLYTINON GT1</b>  |               | Sweetener   |
|                | <b>GLYTINON GTS</b>  |               | Sweetener   |

## 7. Contact

### ■ Head Office / Factory / R&D:

158, KINOKO, SAKURA-SHI, CHIBA, 285-0801, JAPAN

Tel: +81-43-498-0007 Fax: +81-43-498-0561

### ■ Tokyo Office (Sales) :

4-4-16, NIHONBASHI, HONCHO, CHUO-KU, TOKYO, 103-0023, JAPAN

Tel: +81-3-5200-1251 Fax: +81-3-5200-1256

■ URL <http://www.tokiwaph.com/> ■ E-mail [sales@tokiwaph.co.jp](mailto:sales@tokiwaph.co.jp)