



**Licorice extract** is derived from the root of the *Glycyrrhiza glabra* plant, commonly known as licorice. It has been used for centuries in traditional medicine and is now a popular ingredient in skincare products due to its beneficial properties.

## **Chemical Properties:**

### **1. Active Compounds:**

- **Glycyrrhizin (or Glycyrrhizic Acid):** This is the primary active compound in licorice extract, making up 2-25% of the extract by weight. Glycyrrhizin is responsible for many of the extract's therapeutic effects, including its anti-inflammatory and skin-brightening properties.
- **Liquiritin and Licochalcone:** These are additional active compounds found in licorice extract. Liquiritin has skin-brightening effects and can help to disperse melanin, while Licochalcone has anti-inflammatory and antioxidant properties.

### **2. Chemical Structure:**

- **Glycyrrhizin:** Chemically, glycyrrhizin is a saponin glycoside with the formula  $C_{18}H_{21}O_{10}$ . It consists of a glycyrrhetic acid moiety and a glycyrrhizinic acid moiety linked by a glucuronic acid unit.
- **Liquiritin:** It is a flavonoid glycoside, with a structure featuring a flavone backbone linked to glucose.
- **Licochalcone:** This is a flavonoid with a structure that includes a chalcone backbone, which contributes to its anti-inflammatory effects.

### **3. Physical Properties:**

- Licorice extract is usually a brown or yellowish-brown powder or liquid, depending on its preparation. It is soluble in water and can be used in aqueous-based skincare formulations.

### **4. Stability:**

- Licorice extract is generally stable in formulations, but its effectiveness can be influenced by factors such as pH and temperature. Proper storage in a cool, dark place can help maintain its potency.