

# Processing and nutrition of cottonseed oil



China is the world's largest cotton producer and consumer country, cotton seed as a by-product of cotton, the annual output of tens of millions of tons.

Cottonseeds obtained from cotton processing are mostly used for oil production in addition to seed preservation. According to 16% oil production rate and 90% utilization rate, cottonseed oil can be produced in 2009 and 2010, respectively, 1.785 million tons and 1.548 million tons (the actual production of cottonseed oil in two years is only 831,000 tons and 768,000 tons).

## Preparation of 1 [cottonseed oil](#)

### 1.1 extrusion expansion leaching process

[Microwave drying machine](#) technology through kneading, extrusion (heating and pressing), gluing, decompression expansion and subsequent cooling and drying, so that it becomes a kind of structured material. For example, starch gelatinization and gelatinization in cottonseed green, protein structured into a porous and solid granular "cooked green" in the subsequent leaching, greatly improving the solvent permeability and leaching speed.

In addition, the density of extruded material is significantly higher than that of green body, thus improving the treatment capacity of leaching equipment. For example, the density of cotton seed is 410 kg / m<sup>3</sup>, and the density of extruded material is 600~700 kg / m<sup>3</sup>.

### 1.2 prepressing leaching process

Pre pressing leaching process is the most widely used technology to prepare cottonseed oil at present. Gossypol is a kind of toxic phenolic pigment peculiar to cottonseed. gossypol content in cottonseed is 0.15% ~ 1.8% according to different cottonseed varieties and planting areas. In order to reduce the toxicity of gossypol, in the current cottonseed pre-pressing-leaching process, the steamed cottonseed with high moisture content is often used in steaming and frying of cottonseed. In the first layer of auxiliary steaming and frying pot, the wetting moisture of raw cottonseed reaches 18%-22%.

Because of the large intake of water, the phospholipids first absorb water and condense in the cake, which reduces the chance of binding with free gossypol. At this time, free gossypol and protein-forming gossypol remain in the cake. Because of the low toxicity of binding gossypol, it will not affect the feeding value of cottonseed cake, but also reduce the deepening of oil color and the free in crude oil. The content of gossypol increased the quality of wool oil.

The limited amino acid of cottonseed protein is lysine. In the process of high moisture steaming, the protein binds to free gossypol, and the active aldehyde group of gossypol and the epsilon amino group of lysine binds to form Schiff base, which makes lysine ineffective. Therefore, from the nutritional point of view, this is unfavorable to the nutritional value of cottonseed protein.

Generally speaking, cottonseed oil is a kind of high quality edible vegetable oil, which has good cooking quality and good thermal stability. Food processed with cottonseed oil has a long storage and sales period. China's cottonseed oil should have its own brand and gradually establish its own brand name.