Red Yeast Rice: Rediscovery of an Ancient Herb

By John Chen, PhD, PharmD, OMD, LAc

Pinyin Name: Hong Qu
Alternate Chinese Names: Hong Mi, Chi Qu
Original Source: Yin Shan Zheng Yao (Correct Guide to Eating and Drinking)
English Name: red yeast rice
Botanical Name: Monascus purpureus Went.
Pharmaceutical Name: Monascus
Properties: sweet, acrid, warm
Channels Entered: Spleen, Liver, Large Intestine

Background

The chinese characters and an image of red yeast rice. - Copyright â Stock Photo / Register Mark The characters for, and an image of, red yeast rice. Hong qu (monascus), also known as red yeast rice, is rice that has been fermented with the yeast monascus purpureus. The fermentation process changes the color of the rice from white to red, thereby giving it the name "red yeast rice." For centuries, hong qu has been used in China as both food and herbal medicine. It has also been used as a coloring agent to prepare fish, fish sauce, fish paste, rice wine, and red soybean curd. In the late 1990s, it was introduced and used in the U.S. as a dietary supplement to promote healthy cholesterol levels.

Traditional Chinese Medicine

Hong qu has been historically used for two functions: It strengthens the Spleen and Stomach and promotes digestion, and invigorates blood circulation and eliminates blood stasis. The normal dose is 6-12 grams in decoction.

Hong qu strengthens the Spleen and Stomach and promotes digestion to treat indigestion in which there is undigested food in the stool. For indigestion, it is generally used in combination with shan zha (fructus crataegi) and mai ya (fructus hordei germinatus). For food stagnation due to Spleen deficiency, it is used with bai zhu (rhizoma atractylodis macrocephalae) and dang shen (radix codonopsis).
Furthermore, *hong qu* invigorates blood circulation and eliminates blood stasis. It can be used to treat blood stasis in the upper body when combined with *jiang xiang* (lignum dalbergiae odoriferae), *tong cao* (medulla tetrapanacis) and *mo yao* (myrrha). It also relieves pain due to trauma and injuries when combined with *yan hu suo* (rhizoma corydalis), *dang gui* (radicis angelicae sinensis), *hong hua* (flos carthami), *niu xi* (radix cyathulae seu achyranthis), *mo yao* and *ru xiang* (gummi olibanum).

*Hong qu* should be used with caution in cases of Spleen and Stomach deficiency, or in individuals who do not have any food stagnation or blood stasis. It is contraindicated in individuals with active liver disease.

**Clinical Studies and Research**

*Hong qu* has been shown to have antihyperlipidemic effects. Following ingestion, monascolin I (lovastatin) is converted in the body to beta-hydroxy acid, which is an HMG-CoA reductase inhibitor. This compound inhibits cholesterol biosynthesis, leading to reduced levels of plasma total cholesterol, low-density lipoprotein cholesterol (LDL-C), very-low-density lipoprotein cholesterol (VLDL-C), and triglycerides. In addition, it may produce a slight increase in high-density lipoprotein (HDL-C).

*Hong qu* may be used to treat hyperlipidemia. In one multi-center, randomized, single-blind trial, 502 patients with hyperlipidemia were treated with 600 mg of *hong qu* twice daily (1,200 mg total per day). After four weeks of treatment, the study reported a 17% reduction in total cholesterol levels, a 24.6% reduction in LDL-cholesterol, a 19.8% decrease in triglycerides, and a 12.8% increase in HDL-cholesterol. After eight weeks of treatment, the study reported a 22.7% reduction in total cholesterol levels, a 0.9% reduction in LDL-cholesterol, a 34.1% decrease in triglycerides, and a 19.9% increase in HDL-cholesterol.

**Chemical Composition**

*Hong qu* is composed of onasidin, monascolin I (lovastatin, mevinolin), monascolin II (beta-hydroxy acid), monascin, starch, fatty acids, phytosterols, isoflavones.

**Herb-Drug Interaction**

Listed below are interactions that have been documented between pharmaceuticals and lovastatin, a constituent of *hong qu*. 
Liver metabolism: Lovastatin is metabolized primarily by CYP3A4, and may interact with CYP3A4 inhibitors.

Azole antifungals: Concurrent use of itraconazole and ketoconazole increased lovastatin levels twenty-fold in health volunteers, and increased the risk of myopathy.

Bile acid sequestrants: Co-administration of cholestyramine decreases the bioavailability of lovastatin. To avoid this interaction, lovastatin should be taken one hour before or four hours after bile acid sequestrants.

Fibric acid derivatives: Avoid concurrent use of gemfibrozil and lovastatin, as severe myopathy and rhabdomyolysis have been reported.

Isradipine: Isradipine increases hepatic blood flow, and may increase the clearance of lovastatin and its metabolites.

Warfarin: Bleeding and increased prothrombin time have been reported with concomitant use of lovastatin and warfarin.

Author’s Comments

Hong qu is rice that has been fermented with *monascus purpureus* yeast. The process changes the color of the rice from white to red, hence the name "red yeast rice." For centuries, *hong qu* has been used in China as both a food and herbal medicine. It has also been used as a coloring agent to prepare fish, fish sauce, fish paste, rice wine, and red soybean curd.

In the late 1970s, Professor Endo, from Japan, discovered monacolin-k from red yeast rice, and found it could reduce the blood cholesterol of the human body. His great discovery provided scientific support for the effectiveness of the traditional red yeast rice. In the late 1990s, it was introduced and used in the U.S. as a dietary supplement to promote healthy cholesterol levels.

Most medical journals attribute the hypolipidemic effect of *hong qu* to one single component, lovastatin. This explanation, however, is neither sufficient nor entirely accurate. The therapeutic dose of *hong qu* delivers approximately 7.2 mg of lovastatin, while the synthetic drug lovastatin (Mevacor) contains from 10 mg to 40 mg of lovastatin. Yet, despite the lower dose of the supposed active component, the hypolipidemic effects of *hong qu* are much greater than the synthetic drug lovastatin. Thus, it is clear that lovastatin is not the only active component, and more research needs to be done on *hong qu* as an herbal medicine, not just on lovastatin as a single compound.
References


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