Introduction of Magnolia Bark Extract

8th May,2009

Magnolia Bark Extract

- Traditional Chinese Medicine for appr. 2000 years
- Natural
- Multiple health benefits
- SFE-CO2 processed

Outline

- Plant Description
- History
- Chemistry
- Benefits
- Application
- Safety
- Cultivation & Source
- Process & Manufacture
- Analysis
- Supply

Plant Description

- **Order:** Magnoliales
- **Family:** Magnoliaceae
- **Genus:** Magnolia
- **Part used:** Dried stem bark,root bark and branch bark
- **Description:** Yellowish brown
- **Distribution:** Botanists have described approximately 245 species of ***Magnolia***. The natural range of ***Magnolia*** species is a disjunct distribution, with a main center in east and southeast Asia, about 100 species distribute in China, the additional Asian species (about 64) grow in Thailand,Burma,Vietnam,Japan, Korea, Nepal, and India. The Chinese have used the species of **Magnolia officinalis Rehd. et Wils** as medicine for a long time, called in Chinese **hou po.**

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History

◆In Chinese herbalism, Magnolia bark***, hou po***, was first described in the Shennong Bencao Jing (1) around 100 A.D., as follows:***hou po*** is bitter and warm, non-toxic, mainly treating wind-stroke, cold damage, headache, cold and heat, blood impediment, and dead muscle. It removes the three kinds of worms.

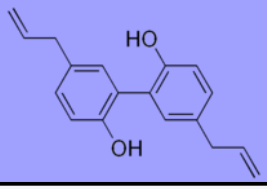
◆Magnolia bark was a major component in many Traditional Chinese Formulas:

- Formulas for internal accumulation, made with rhubarb and chih-shih
- Formulas for digestive system weakness, made with ginger and licorice.
- Formulas for stagnation of qi in the chest with difficult breathing made with either Ephedra or cinnamon twig.

Chemistry

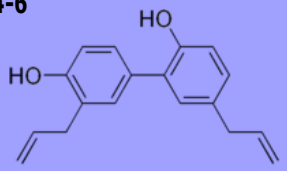
- **Magnolia Bark**
  - **Isomeric biphenol**
    - **Magnolol:** is known to act on the GABAA receptors in rats, as well as having antifungal properties.

      IUPAC: 4-allyl-2-(5-allyl-2-hydroxy-phenyl)-phenol
      Synonym: Dehydrodichavicol
      5,5'-Diallyl-2,2'-dihydroxybiphenyl
      5,5'-Diallyl-2,2'-biphenyldiol
      CAS No.: 528-43-8
      MW: 266.334
      MF: C18H18O2
      MP: 1020℃

    - **Honokiol** is known as a potent and highly tolerable anti-tumorigenic and neurotrophic compound

      IUPAC:
      4-allyl-2-(3-allyl-4-hydroxy-phenyl)-phenol
      Synonyms: 3,5'-Diallyl-4,2'-dihydroxybiphenyl
      CAS No.: 35354-74-6
      MW: 266.334
      MF: C18H18O2
      MP: 87.50 ℃

  - **Triterpene essentia**
    - **Eudesmol**
  - **Alkaloids**
    - **Magnocurarine, Magnoflorine, Anonaine, Salicifoline**

Benefits

◆ **Treating digestive problems** : It is one of the best herbs in the Chinese Pharmacopoeia for treating digestive gas, bloating, colic, and diarrhea ;

◆ **Treating respiratory problems**: like cough and asthma;

◆ **Weight loss**: helping to balance stress hormones by combinated with Phellodendron,a patented formula;

◆ **Depress reducing:** Honokiol was found to be five times stronger than diazepam in reducing depress without the side effects in diazepam;

◆ **Treating Alzheimer's Disease:** powerful effects on acetylcholine levels in the brain;

◆ **Anti-inflammatory effect** :by increasing Corticosteroid level;

◆ **Antibacterial effects:** stronger than berberine against *Streptococcus mutans,* especially apply to dental care product ;

◆ **Whiten Skin 、Anti-tumorigenic、 Neurotrophic、 Anti-thrombolytic activities**。

Application

Magnolia Bark Extract can be used in supplements, pharmaceuticals and personal care & beauty products globally.

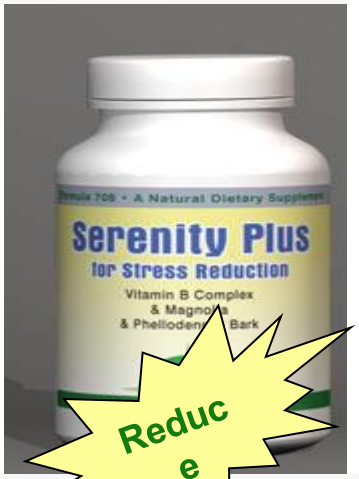
One Kampo remedy *Saiboku-to* has been approved by the Japanese Health Ministry for the treatment of asthma.

Other products in current market,e.g.

Improve Digestive

Depression reduction

Weight loss



Reduce Stress

Beauty products

Safety

◆ LD50 is about 6g/kg for the decoction for the average adult.

◆ Recommend 50-80 mg daily dose for extract standardized of 95 % magnolol + honokiol.

Cultivation

Planting conditions:
- sunny, temperate zone and subtropical zone.
- Height above sea level 300-1500m.
- Fertile, wetland, loose earth.

Harvest season:
From May to September,when the tree is over 15years old.

Current cultivated distribution:

In view of the mutiple effects and increasing demand in medince for Magnolia bark,Chinese have been cultivating ***Magnolia officinalis Rehd. et Wils*** for more than 50 years, distributed mainly in south-west of Hunan Province,south-east of Gansu province, Zhejiang province, south of Anhui Province, north of Jiangxi province, west of Hubei province, Fujian Province, north of Guangxi Province, Guizhou and Yunnan Province, etc.

Source

In 2008,the yeild of Magnolia bark is about 3,000 Tonns in China, Hunan Province produced about 30% of the total.

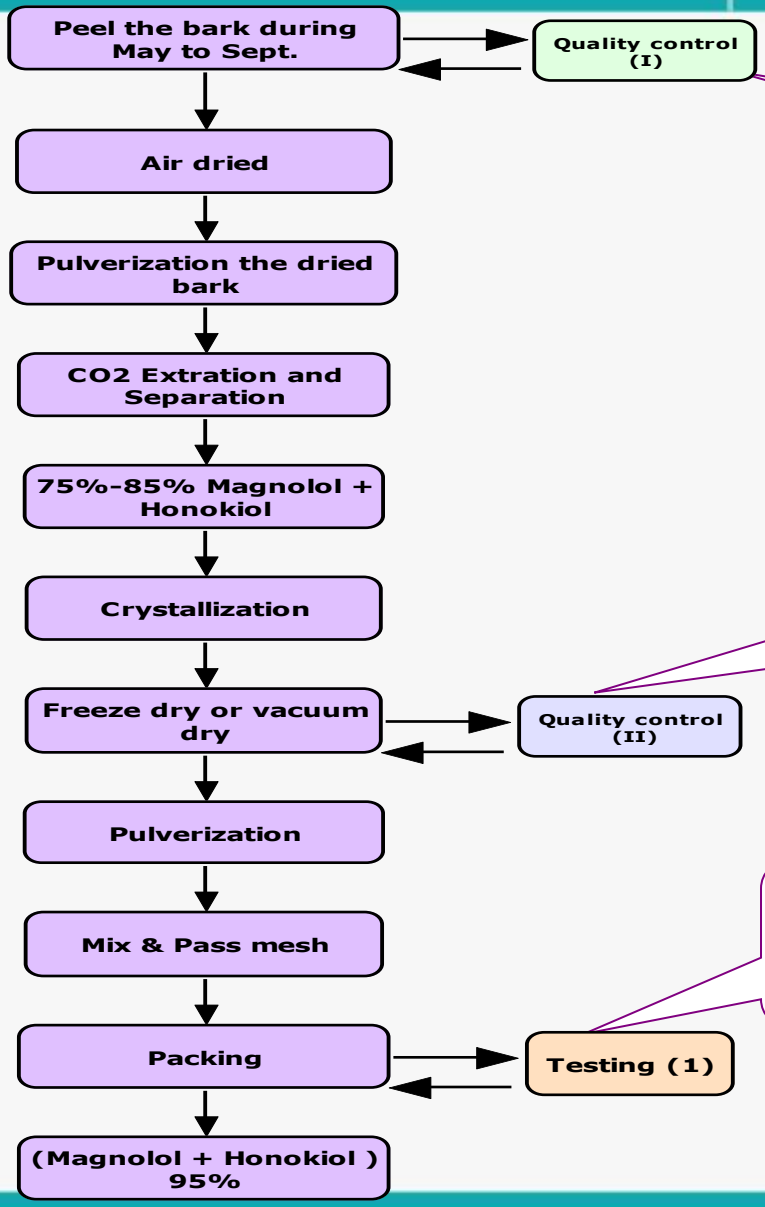
Magnolol and Honokiol content in Magnolia bark comparision:

Magnolia officinalis Rehd. Et Sample from	Content in **Tree Bark** of (%)		Content in **Root Bark** of (%)	
	Magnolol	Honokiol	Magnolol	Honokiol
Hunan Province	2.1	2.5	4.3	5.1
Hubei Province	1.9	2.4	4.1	4.7
Zhejiang Province	1.8	2.5	3.7	5.2
Sichuan Province	2.1	2.3	4.2	4.6
Yunnan Province	1.9	2.5	3.8	5.2

Conclusion:

1, Qualified Magnolia officanalis **Tree Bark** contains min. **4%** Magnolol + Honokiol; and Magnolol : Honokiol = **4 : 5**,and the **Hunan** Magnolia bark is the best.
2.Qualified Magnolia officanalis **Root Bark** contains min. **9%** Magnolol + Honokiol; and Magnolol : Honokiol = **4 : 5**, and the **Hunan** Magnolia is the best.
3, Because the volume of Root Bark is limited,so most bark used for the extraction is from Tree .
4, In standardized ***Magnolia officianalis -95%***, Magnolol : Honokiol shall be also 4 : 5.
5, If there is a product "***Magnolia officianalis bark extract 95% standardized***", Magnolol : Honokiol is not 4 : 5, but 3 : 7 or even 2 : 8 or other ratio, it is very possible that it is not made from Magnolia officinalis but other Magnolia species.

Process



HPLC finger print, test pesticides,heavy metals,Magnolol and Honokiol content,moisture.

Test Magnolol and Honokiol content,solvent residue, pesticides,heavy metals,moisture,ash.

Test Magnolol and Honokiol content,solvent residue, pesticides,heavy metals,moisture,ash,micro bacteria,metal detection.

Manufacture

Analysis for Magnolia Bark Extract by GC/MS

Raw material：Magnolia officinalis Rehd.
Extraction method: Supercritical CO2 extraction

No.	Compounds	M.W.	Area content (%) HSS-040928MH	Area content (%) HSS-041001MH	Area content (%) HSS-041002MH
1	3-Hexen-1-ol, acetate,(Z)-	142			
2	1,8-Cineole	154			
3	LinaloolTrans	154			
4	(β)-Caryophyllene	204			
5	β-Gurjunene	204			
6	α-Caryophyllene	204			
7	γ-Muurolene	204			
8	β-Selinene	204			
9	α-Selinene	204			
10	α-Muurolene	204			
11	δ-Cadinene	204			
12	Caryophyllene oxide	220			0.03
13	γ-Eudesmol	222		0.09	0.05

Analysis for Magnolia Bark Extract by GC/MS

Raw material：Magnolia officinalis Rehd. Et Wils. Var. bilola rehd. Et Wils.
Extraction method: Supercritical CO2 extraction

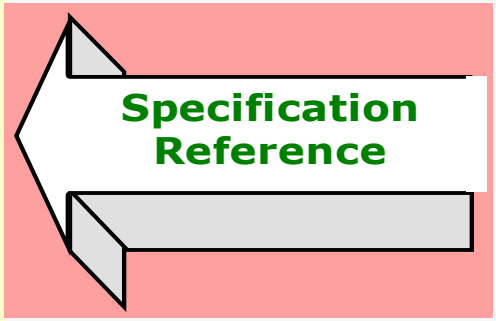
No.	Compounds	M.W.	Area content (%) Lot#040928MH	Area content (%) Lot#041001MH	Area content (%) Lot#041002MH
14	β-Eudesmol	222	0.11	0.18	0.09
15	α-Eudesmol	222	0.14	0.23	0.11
16	Humulene oxide	220	0.06	0.10	0.04
17	Isomagnolol [1]	266	0.07	0.24	0.04
18	Magnolol	266	56.47	45.51	46.17
19	4,4'-Diallyl-3,2',6'-trimethoxybiphenyl ether[2]	340	1.11	1.40	1.07
20	5,5'-Diallyl-2-hydroxy-3,2',3'-trimethoxy-biphenyl[2]	340			
21	4-O-methylhonokiol [3]	280	1.22	1.63	0.86
22	4,4'-Diallyl-2,3'-dihydroxybiphenyl ether [4]	282	2.21	4.73	1.22
23	Honokiol	266	38.49	45.62	50.28
24	Bornylmagnolol [5]	402	0.12	0.27	0.04
		Total	100.00	100.00	100.00

Specification

Product Name:	**Magnolia Bark Extract**	**Product Code:**	**MBE05**
Latin Name:	**Magnolia Officinalis**	**Shelf Life:**	**2 Years**

ITEM	SPECIFICATION
PHYSICAL TESTS:	
DESCRIPTION:	
APPEARANCE	WHITE POWDER
ODOR	CHARACTERISTIC
TAST	CHARACTERISTIC
COUNTRY OF ORIGIN	CHINA
PARTICLE SIZE	THROUGH 80 MESH
PLANT PART USED	DRY BARK
CHEMICAL TESTS:	
HONOKIOL+ MAGNOLOL (HPLC)	≥95%
HONOKIOL	>50%
MAGNOLOL	>40%
HUMULENE OXIDE	
γ-EUDESMOL	
β-EUDESMOL	
α-EUDESMOL	
ISOMAGNOLOL	
4-0-METHYLHONOKIOL	
4,4'-DIALLYL-2,3'-DIHYDROXYBIPHENYL ETHER	
4,4'-DIALLYL-3,2',6'-TRIMETHOXYBIPHENYL ETHER	
BORNYLMAGNOLOL	
EXTRACT METHOD	SUPERCRITICAL CO_2
CARRIERS USED	NONE
LOSS ON DRYING	≤2.0%
ASH	≤1.0%
HEAVY METALS	< 10PPM
ARSENIC (As)	< 0.5PPM
LEAD (Pb)	< 0.5PPM
CADMIUM (Cd)	< 0.05PPM
MERCURY (Hg)	NOT DETECTED
PESTICIDE RESIDUE (GC)	
ACEPHATE	< 0.1 PPM
METHAMIDOPHOS	< 0.1 PPM
PARATHION	< 0.1 PPM
PCNB	< 10 PPB
MICROBIOLOGICAL TEST	
TOTAL PLATE COUNT	< 1000CFU/ G
YEAST AND MOLD	< 100 CFU/ G
SALMONELLA	NEGATIVE
E.COLI	NEGATIVE
STAPHYLOCOCCUS	NEGATIVE
AFLATOXINS	< 0.2 PPB
IRRADIATION	NON-IRRADIATION
ETO	NON-ETO
STORE IN SEAL CONTAINER, KEEP IN COOL AND DRY PLACE, AWAY FROM STRONG LIGHT AND	

layn Natural Ingredients



Thank You And Welcome To Guilin

Green Science For A Healthy Future!