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Biological activity and toxicity of the Chinese herb *Magnolia officinalis* Rehder & E. Wilson (Houpo) and its constituents

Key words: **Magnolia bark, Hou Po, Houpo, Chinese herb, Traditional Chinese medicine**

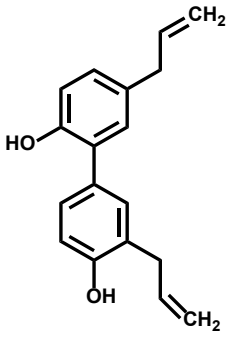
Review Summary

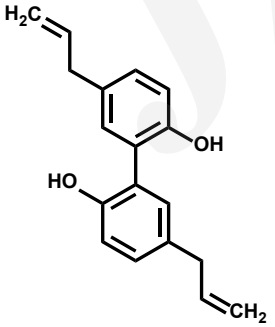
Magnolia bark extract is a major constituent of currently marketed dietary supplements and cosmetic products. The present review aims to summarize the literature on bark composition, utilization, pharmacology and safety.

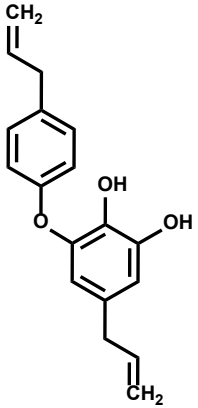


- **Extensive knowledge of phytochemistry**
- **Extensive knowledge of individual constituents' pharmacology and toxicology**
- **Very few clinical studies**

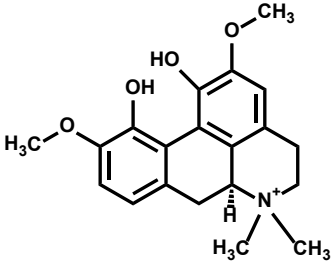
Lignans

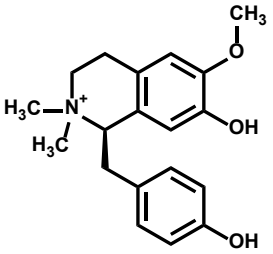






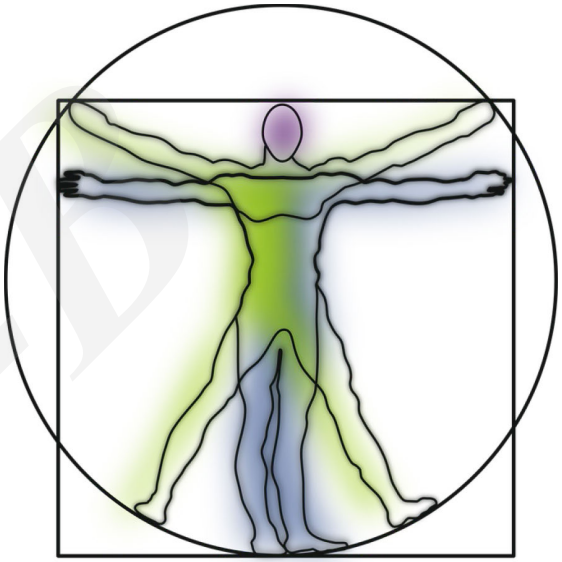
Alkaloids





Phytochemistry & Pharmacology

- **Essential oil:** major sesquiterpenoid alcohols.
- **Lignans:** polyphenols with important pharmacological activities.
- **Alkaloids:** various tetrahydroisoquinoline structures, either tertiary or quaternary.



Major effects observed through *in vivo* and *in vitro* studies

- ✓ Cytotoxic: eventual therapeutic application in cancer?
- ✓ Anti-inflammatory
- ✓ Anti-asthma
- ✓ Gastrointestinal disorders
- ✓ Diabetes
- ✓ Neuronal diseases (anxiety, depression, Alzheimer's disease)
- ✓ Cardiovascular diseases (atherosclerosis, anti-platelet activity)
- ✓ Antimicrobial

Summary of important points

A series of comprehensive tables were generated to summarize the knowledge about *Magnolia* bark.

Table 1	Examples of Traditional Asian formulas containing *Magnolia*.
Table 2	Major constituents of *Magnolia* bark.
Table 3	Chemical properties of lignans magnolol, honokiol and obovatol.
Table 4	Chemical properties of the alkaloids magnoflorine and magnocurarine.
Table 5	Content of magnocurarine in *Magnolia* officinalis bark.
Table 6	Cytotoxic activities of *Magnolia* compounds.
Table 7	Anti-inflammatory lignans from *Magnolia*.
Table 8	In vitro effects of *Magnolia* compounds active in asthma treatment.
Table 9	*Magnolia* compounds active in GI disorders.
Table 10	Anti-atherosclerosis effects of *Magnolia* lignans.
Table 11	Antimicrobial effect of *Magnolia officinalis* compounds.
Tables 12-14	Toxicological data on *Magnolia* bark extracts (MBE).