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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

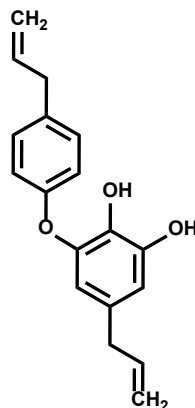
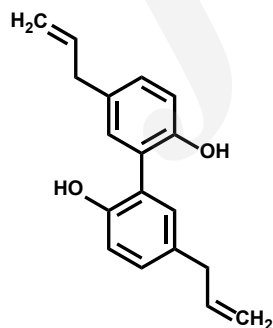
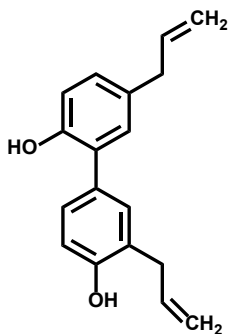
Review Summary

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.

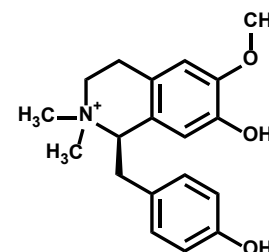
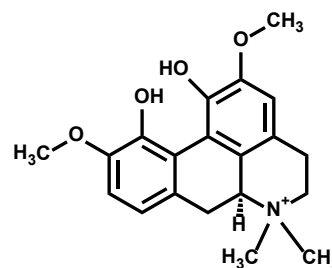


- Extensive knowledge of phytochemistry
- Extensive knowledge of individual constituents' pharmacology and toxicology
- Very few clinical studies

Lignans

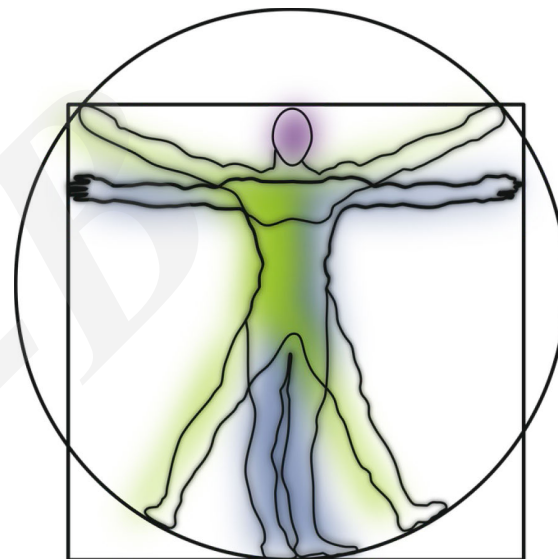


Alkaloids



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 <i>Magnolia</i> .
Table 2	Major constituents of <i>Magnolia</i> 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 <i>Magnolia officinalis</i> bark.
Table 6	Cytotoxic activities of <i>Magnolia</i> compounds.
Table 7	Anti-inflammatory lignans from <i>Magnolia</i> .
Table 8	In vitro effects of <i>Magnolia</i> compounds active in asthma treatment.
Table 9	<i>Magnolia</i> compounds active in GI disorders.
Table 10	Anti-atherosclerosis effects of <i>Magnolia</i> lignans.
Table 11	Antimicrobial effect of <i>Magnolia officinalis</i> compounds.
Tables 12-14	Toxicological data on <i>Magnolia</i> bark extracts (MBE).