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Safety and Toxicology of Magnolol and Honokiol.

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Abstract

Magnolia officinalis and *Magnolia obovata* bark extracts have been used for thousands of years in Chinese and Japanese traditional medicines and are still widely employed as herbal preparations for their sedative, antioxidant, anti-inflammatory, antibiotic, and antispastic effects. Neolignans, particularly magnolol and honokiol, are the main substances responsible for the beneficial properties of the magnolia bark extract (MBE). The content of magnolol and honokiol in MBE depends on different factors, including the *Magnolia* plant species, the area of origin, the part of the plant employed, and the method used to prepare the extract. The biological and pharmacological activities of magnolol and honokiol have been extensively investigated. Here we review the safety and toxicological properties of magnolol and honokiol as pure substances or as components of concentrated MBE, including the potential side-effects in humans after oral intake. *In vitro* and *in vivo* genotoxicity studies indicated that concentrated MBE has no mutagenic and genotoxic potential, while a subchronic study performed according to OECD (Organisation for Economic Co-operation and Development) guidelines established a no adverse effect level for concentrated MBE > 240 mg/kg b.w/d. Similar to other dietary polyphenols, magnolol and honokiol are subject to glucuronidation, and despite a relatively quick clearance, an interaction with pharmaceutical active principles or other herbal constituents cannot be excluded. However, intervention trials employing concentrated MBE for up to 1 y did not report adverse effects. In conclusion, over the recent years different food safety authorities evaluated magnolol and honokiol and considered them safe.

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