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# Amygdalin – A pharmacological and toxicological review

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## Abstract

**Ethnopharmacological relevance:** Amygdalin is commonly distributed in plants of the Rosaceae, such as peach, plum, loquat, apple and bayberry, but most notably in the seeds (kernels) of apricot almonds. As a naturally aromatic cyanogenic compound, it has long been used in Asia, Europe and other regions for the treatment of various diseases including cough, asthma, nausea, leprosy and leukoderma. Importantly, in recent years, an increasing attention has been paid to its antitumor effect.

**Aim of the study:** The paper aims to review the pharmacological activities and toxicological effects of amygdalin and provide a reference and perspective for its further investigation.

**Methods:** Electronic databases including the Web of Science, Cochrane Library, PubMed, EMBASE, the Chinese Biological Medicine Database, China National Knowledge Infrastructure, Wanfang database and VIP information database were searched up to November 2019 to identify eligible studies. A meticulous review was performed, an in-depth analysis on the pharmacological activity and toxicology of amygdalin was conducted, and perspectives for future research were also discussed.

**Results:** A total of 110 papers about in vitro/in vivo studies on amygdalin have been reviewed. Analysis on the data suggested that this compound presented pharmacological activities of anti-tumor, anti-fibrotic, anti-inflammatory, analgesic, immunomodulatory, anti-atherosclerosis, ameliorating digestive system and reproductive system, improving neurodegeneration and myocardial hypertrophy, as well as reducing blood glucose. In addition, studies revealed that amygdalin's toxicity was caused by its poisonous decomposite product of benzaldehyde and hydrogen cyanide after oral ingestion, toxicity of intravenous administration route was far less than the oral route, and it can be avoidable with an oral dose ranging from 0.6 to 1 g per day.

**Conclusion:** This paper has systematically reviewed the pharmacology and toxicology of amygdalin and provided comprehensive information on this compound. We hope this review highlights some perspectives for the future research and development of amygdalin.

**Keywords:** Amygdalin; Pharmacological activity; Review; Toxicology.

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