







Review

Health Benefits, Pharmacological Effects, Molecular Mechanisms, and Therapeutic Potential of α -Bisabolol

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Abstract: α -Bisabolol is one of the important monocyclic sesquiterpenes, derived naturally from essential oils of many edible and ornamental plants. It was first obtained from *Matricaria chamomilla*, commonly known as chamomile or German chamomile. The available literature indicates that this plant along with other α -Bisabolol containing plants is popularly used in traditional medicine for potential health benefits and general wellbeing. Nutritional studies are indicative of the health benefits of α -Bisabolol. Numerous experimental studies demonstrated pharmacological properties of α -Bisabolol including anticancer, antinociceptive, neuroprotective, cardioprotective, and antimicrobial. This review aims to collectively present different pharmacological activities based on both in vitro and in vivo studies. In the present review using synoptic tables and figures, we comprehensively present that α -Bisabolol possesses therapeutic and protective activities, therefore, it can be used for potential health benefits based on pharmacological effects, underlying molecular mechanism, and favorable pharmaceutical properties. Based on the studies mostly performed on cell lines or animal models, it is evident that α -Bisabolol may be a promising nutraceutical and phytomedicine to target aberrant biological mechanisms which result in altered physiological processes and various ailments. Given the polypharmacological effects and pleiotropic properties, along with favorable pharmacokinetics, and dietary availability and safety, α -Bisabolol can be used as a dietary agent, nutraceutical or phytopharmaceutical agent or as an adjuvant with currently available modern medicines. The regulatory approval of this molecule for use as food additives, and in cosmetics and fragrance industry is also supportive of its human usage. Moreover, further studies are necessary to address pharmaceutical, pharmacological, and toxicological aspects before clinical or nutritional usage in humans. The biological actions and health benefits open opportunities for pharmaceutical development with pharmacological basis of its use in future therapeutics.

Keywords: α -Bisabolol; German chamomile tea; natural products; phytochemicals; sesquiterpene; pharmacology



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1. Introduction

Sesquiterpenes, a subclass of terpenes has attracted a significant interest due to their wide range of biological properties that have been employed in pharmacological and therapeutic research applications. The high identification of sesquiterpenes compounds



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