



## **Therapeutic use of boldo-do-chile (*Peumus boldus M.*) Undergoing treatment for liver disease**

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### **ABSTRACT**

Studies on medicinal plants are intrinsically linked to the growing emphasis on the defense and enhancement of biodiversity, a theme widely discussed and contemplated in public policies aimed at the conservation of global flora and fauna. In this context, the World Health Organization (WHO) recognizes the traditional knowledge related to these practices, highlighting the relevance of the integration between ancestral wisdom and contemporary approaches to health promotion.

**Keywords:** Health, Medicinal plants, Ancestral wisdom.

### **1 INTRODUCTION**

Studies on medicinal plants are intrinsically linked to the growing emphasis on the defense and enhancement of biodiversity, a theme widely discussed and contemplated in public policies aimed at the conservation of global flora and fauna. In this context, the World Health Organization (WHO) recognizes the traditional knowledge related to these practices, highlighting the relevance of the integration between ancestral wisdom and contemporary approaches to health promotion. The use of plant organisms in the therapeutic context represents one of the oldest manifestations in the history of human society. The interaction between humans and the plant kingdom is evidenced by the multiplicity of applications of plant resources, covering both the food sphere and medicinal purposes, as has been discussed in recent scientific studies (AL MANSOUR, 2015; RIBEIRO, 2018; SANTOS et al., 2019; GIRALDI; HANAZAKI, 2010; ZARDO et al., 2016).



In the Brazilian context, the recognition of the importance of traditional herbal medicine was driven by several social contingencies, including the disparity in access to primary health services in different regions and for certain geographically distributed populations. In addition, accessibility to medicinal plants is more present among the poorest layers of society and in traditional communities, which are used as primary therapeutic resources in the face of difficulties in accessing public health services.

The inclusion of traditional phytotherapy in public health therapeutic practices is also a reflection of the limitation of the official health system in fully covering the entire population, evidencing the need for therapeutic alternatives. In this context, the relevance of expanding studies in this field is highlighted, considering the significant diversity of species used in the treatment of diseases by traditional communities.

## 2 OBJECTIVE

To analyze the traditional therapeutic uses of the phytotherapeutic species *Peumus Boldus* (M.), popularly known as "Boldo-do-Chile", in the treatment of liver diseases.

## 3 METHODOLOGY

To carry out this study, a literature review related to the species *Peumus Boldus* Molina was carried out. In addition, publications were selected in specialized bibliographies. The following keywords were used to carry out the searches: medicinal plants, toxicity, *Peumus Boldus* Molina and Traditional Phytotherapy.

## 4 DEVELOPMENT

*Peumus boldus*, a tree species endemic to Chile belonging to the Monimiaceae family, is popularly known as boldo, standing out as an herbal medicine widely used in the treatment of affections related to the digestive system (RUIZ et al., 2008). Its predominant chemical component in teas is the alkaloid boldin, whose presence is found in Brazilian, Chilean and European pharmacopoeias. In addition, boldin is often employed in homeopathic medicine as a primary therapeutic agent to address liver disorders (RUIZ et al., 2008)

In Brazil, boldo is available in supermarkets and establishments dedicated to natural products, and is sold indiscriminately in leaves intended for the preparation of teas. In this scenario, there is a practice that goes against the guidelines established by the National Health Surveillance Agency (ANVISA), which advocate the need for standardization in packaging, including with regard to the identification of the specific species of "boldo" supplied to consumers (BRASIL, 2009).

Pharmacological studies indicate that the essential oil from boldo leaves exhibits antibacterial properties against *Streptococcus pyogenes*, *Micrococcus* sp., *Staphylococcus aureus*, *Bacillus subtilis*, in



addition to manifesting antifungal activity against several species of *Candida* (VIEIRA et al., 2021). This species has remarkable antioxidant capacity, standing out for its effectiveness in neutralizing hydroxyl and peroxy radicals (VIEIRA et al., 2021). Additionally, it demonstrates aptitude for mitigating the development of diabetes and tumors in laboratory experiments (Ruiz et al., 2008). In relation to human blood samples, it was observed that boldo exerts an inhibitory effect on platelet aggregation. Additional studies corroborate its anti-inflammatory properties and blocking action at the neuromuscular junction (RUIZ et al., 2008).

However, *Peumus boldus* in the form of tea should be consumed with caution and moderation, especially in the case of pregnant women, because its use can trigger risks of teratogenesis, as attested by Almeida *et al.* in experiments carried out on rats (ALMEIDA *et al.*, 2000). Studies indicate risk of allergic dermatitis, hepatotoxicity, increased anticoagulant effect in patients using warfarin peroxy (VIEIRA *et al.*, 2021). According to Vieira (2021), there is only one proven case of anaphylaxis with the consumption of boldo tea. The study conducted by Almeida *et al.* (2000) evaluated the toxicology of the hydroethanolic extract of *Peumus boldus* leaves in pregnant rats (800 mg/kg, orally, single dose) and evidenced teratogenic and abortifacient effects. Vieira *et al.* (2021), point out that in the same study, carried out with male rats treated orally with the crude extract of boldo, for 90 days, from the thirtieth day onwards, they already showed a considerable increase in cholesterol and transaminases and a reduction in the levels of total bilirubin, glucose and urea (ALMEIDA *et al.*, 2000).

The scientific literature also indicates that the species *Peumus boldus M.*, because it has alkaloids in its structure, is contraindicated for children under 6 years of age. A study detected that "the essential oil at a dose of 0.07g/k produces seizures in guinea pigs, thus not being indicated in people with a history of seizures, especially children" (VIEIRA *et al.*, 2021 *apud* TORRES *et al.*, 2005).

Finally, it is important to point out that there are still many medicinal plants that do not have sufficiently satisfactory data to attest to their safety, and their use can cause impacts on the health of those who are consuming a certain species (ALCANTARA *et al.*, 2015). It is in this context that toxicology comes to evaluate and measure the harmful side effects of chemical substances for the living organism, in order to analyze the negative response of substances at the biochemical, cellular and molecular levels, and to determine the level of risk of human consumption in relation to various products, establishing parameters of the necessary and safe conditions of exposure to the available agents.

## 5 FINAL THOUGHTS

The species *Peumus Boldus* Molina, popularly recognized as Boldo-do-Chile, is scientifically corroborated as an effective alternative in the treatment of liver disorders and cholelithiasis, additionally presenting diuretic and anti-inflammatory properties. However, investigations focused on *Peumus Boldus*



M. have revealed the presence of alkaloids, representing a significant health concern, especially in consumers under six years of age.

The studies highlight the therapeutic benefits, such as the antibacterial and antifungal activity of bilberry leaf essential oil. However, it is crucial to underline that indiscriminate consumption of this species can carry substantial risks, including teratogenic and abortifacient effects. In addition, the often confusing commercialization or substitution for other species of the genus boldo can contribute to cases of poisoning among consumers.

Therefore, this study highlights a significant knowledge gap among the Brazilian population regarding the use of this herbal species, emphasizing the urgent need for information on its complications and the importance of responsible consumption. In addition, it offers a solid basis for future investigations related to *Peumus Boldus* Molina and its role in traditional herbal medicine, aiming to improve use practices and minimize the potential associated risks.



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