Exploring the diverse properties of *Mentha piperita* L.: a systematic review

Inês Ferreira[1*], Mariana Sousa[1], Susie Sequeira[1], Agostinho Cruz[1]
[1] CISA, ESS, Polytechnic of Porto, rua Dr. António Bernardino de Almeida, 4200-072 Porto, Portugal
**10200473@ess.ipp.pt*

Background: *Mentha piperita* L., widely recognized as peppermint, is globally renowned and popular due to its versatile applications in medicine, industry, and cuisine [1]. This perennial plant has a worldwide distribution, with origins in Europe and Middle East. As member of the Lamiaceae family it's a natural hybrid of *Mentha aquatic* L. and *Mentha spicata* L. [1]. Traditionally, it has been used for alleviating gastrointestinal and respiratory symptoms [2]. Currently, it is utilized in medicine to manage respiratory diseases, in cosmetics for incorporation into toothpaste, and in food preservation or preparation purposes [3]. **Aim:** This review systematizes the known properties of *Mentha piperita* L. based on the current literature, presenting its state-of-the-art. **Methods:** Based on PRISMA 2020 guidelines, the search involved three databases: Web of Science, PubMed, and Science Direct, using the search terms "*Mentha piperita*" and "properties" combined with Boolean operators "AND". Inclusion criteria considered original research articles in Portuguese or English, without year restrictions. **Results:** This search yielded 497 results of which 20 original articles were fully analysed. Peppermint can be characterised by its smooth stems, dark green leaves with pointed tips, coarsely toothed margins, bare fibrous roots and the presence of purple flowers. This botanical specimen can be recognised by its unique organoleptic characteristics, which include an aromatic odour and a pungent, fiery taste, culminating in a refreshing sensation. The literature suggests a wide range of properties such as antimicrobial, antioxidant, antibacterial, anti-aging, antibiofilm, cytotoxic, larvicidal, fungicidal, fungistatic, neuroprotective, anti-inflammatory and anti-Alzheimer, among others. **Conclusions:** This review underscores the remarkable versatility and diverse array of properties exhibited by *Mentha piperita* L., shedding light on its potential applications across various domains. Peppermint's distinctive characteristics and wide-ranging utility position it as a species of significant relevance, with applications extending beyond health to various other study subjects.

Keywords: Ethnobotany; peppermint; phytochemistry; properties.

Acknowledgements
Funding: This research received no external funding

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