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**A review of the traditional and modern uses of *Salvadora persica* L. (Miswak):  
Toothbrush tree of Prophet Muhammad**

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**Abstract**

**Ethnopharmacological relevance:** *Salvadora persica* L., also known as Arak (in Arabic) and Peelu (in Urdu), is the most common traditional source of tooth or chewing stick (miswak) highly recommended by Prophet Muhammad. To date, extensive studies have probed primarily into the validation of its traditional uses in oral care. Nonetheless, there is still a dearth of updated compilation and critical analysis of other potential ethnopharmacological properties of *S. persica*. This review therefore aims to provide an up-to-date detailed structured description of the traditional uses of *S. persica* and a critical analysis of its modern uses, highlighting its phytochemistry, pharmacological properties, and bioapplications.

**Materials and methods:** Various databases (Science Direct, PubMed, Wiley Online Library, and Google Scholar), books, and relevant primary sources were probed, surveyed, analysed, and included in this review. The literature cited in this review dated from 1979 to 2017.

**Results:** *S. persica* was found to possess a plethora of bioactive compounds and broad pharmacological properties, including antimicrobial, antioxidant, enzyme inhibitory activity, antiulcer, anticonvulsant, sedative, analgesic, anti-inflammatory, hypoglycemic, hypolipidemic, antiosteoporosis, and antitumor activities. Studies also revealed the potential use of *S. persica* as a natural food preservative and a novel functional food ingredient. In addition, improvement in growth and reproductive performances have been observed by the introduction of *S. persica* in animal feed. Lastly, *S. persica* has also been used in the green synthesis of nanoparticles showing potential biotechnological applications.

**Conclusion:** *S. persica* showed a wide scope of application and its uses have been extended far beyond the initial traditional uses of its roots, stems, and twigs in oral care. We found a number of other ethnopharmacological uses and potential bioapplications of different parts of *S. persica* that warrants further investigations. Though widely studied using several *in vitro* and *in vivo* models, and tested clinically for oral hygiene mainly, several gaps and research priorities have been identified which needs to be addressed in future.

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