Phenolic Compounds of *Salvia officinalis* and *Salvia rosmarinus*: Mechanisms for Cognitive Enhancement

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Abstract

Salvia officinalis (common sage) and *Salvia rosmarinus* (rosemary) are aromatic herbs traditionally associated with memory enhancement and cognitive support. Increasing evidence attributes these effects primarily to their phenolic constituents, notably carnosic acid, rosmarinic acid, and carnosol, alongside various flavonoids. These compounds exhibit potent antioxidant and anti-inflammatory properties, modulate neurotransmitter systems, and activate cytoprotective pathways, contributing to neuronal resilience and synaptic plasticity. Preclinical studies demonstrate that these phenolics attenuate oxidative stress, reduce β-amyloid toxicity, and improve learning and memory in animal models. Clinical trials with Salvia extracts report improvements in attention, working memory, and overall cognitive performance, though evidence for isolated compounds remains limited. Differences in chemical profiles suggest that *S. officinalis* is richer in rosmarinic acid and flavonoids, while *S. rosmarinus* contains higher levels of carnosic acid and carnosol, offering complementary mechanisms. Overall, *Salvia* phenolics represent promising multi-target agents for maintaining cognitive function and protecting against neurodegenerative decline.

Keywords

Salvia officinalis, Salvia Rosmarinus, phenolic compounds.

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