

SILVA, F V. M. ¹, MARTINS, A.; SALTA, J.; NENG, N. R.; NOGUEIRA, J. , MIRA, D. ¹, GASPAR, N. ¹; JUSTINO, J. ¹; GROSSO, C., URIETA, J. S.; PALAVRA, A.M.S.; RAUTER, A. P. (2009) - Phytochemical profile and anticholinesterase and antimicrobial activities of supercritical versus conventional extracts of *Satureja montana*. *J. Agric. Food Chem.*, 57 (24): 11557–11563. DOI: 10.1021/jf901786p

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Abstract

Winter savory *Satureja montana* is a medicinal herb used in traditional gastronomy for seasoning meats and salads. This study reports a comparison between conventional (hydrodistillation, HID, and Soxhlet extraction, SE) and alternative (supercritical fluid extraction, SFE) extraction methods to assess the best option to obtain bioactive compounds. Two different types of extracts were tested, the volatile (SFE-90 bar, second separator vs HID) and the nonvolatile fractions (SFE-250 bar, first and second separator vs SE). The inhibitory activity over acetyl- and butyrylcholinesterase by *S. montana* extracts was assessed as a potential indicator for the control of Alzheimer's disease. The supercritical nonvolatile fractions, which showed the highest content of (+)-catechin, chlorogenic, vanillic, and protocatechuic acids, also inhibited selectively and significantly butyrylcholinesterase, whereas the nonvolatile conventional extract did not affect this enzyme. Microbial susceptibility tests revealed the great potential of *S. montana* volatile supercritical fluid extract for the growth control and inactivation of *Bacillus subtilis* and *Bacillus cereus*, showing some activity against *Botrytis* spp. and *Pyricularia oryzae*. Although some studies were carried out on *S. montana*, the phytochemical analysis together with the biological properties, namely, the anticholinesterase and antimicrobial activities of the plant nonvolatile and volatile supercritical fluid extracts, are described herein for the first time.

Keywords

Satureja montana; supercritical fluid extraction; HPLC-DAD; anticholinesterase activity; Alzheimer's disease; antimicrobial activity

Satureja / Planta medicinal / Extracto / Doença do sistema nervoso

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