

ABSTRACT

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Title of dissertation thesis: The use of separation techniques in phytochemical analysis

The alkaloid extract obtained from stems with immature capsules from *Papaver rhoeas* L. was subjected to a phytochemical study. The summary extract was separated into individual fractions by Flash chromatography. After performing biological tests for inhibitory activities of acetylcholinesterase and butyrylcholinesterase, the fraction PPR-11 and PPR-12 was selected. The fraction showed the highest activity against butyrylcholinesterase (95.55 ± 0.96 and $97.03 \pm 0.79\%$ inhibition of butyrylcholinesterase at 50 /g / ml). The combined PPR 11-12 fractions were purified by preparative chromatography to individual subfractions, which were purified by preparative thin layer chromatography. A monocomponent crystalline substance of alkaloid origin was obtained from the subfraction named PPR 11-12Fr # 8-A.

Based on instrumental analysis, the analyte was identified as an alkaloid of the aporphine type (+)-caaverine. The inhibitory activities against acetylcholinesterase and butyrylcholinesterase for (+)-caaverine, were determined and compared with routinely used phytopharmaceuticals for the treatment of Alzheimer's disease. The assessed values were expressed as IC₅₀.

Key words: liquid chromatography, natural substances, mass spectrometry, *Papaver rhoeas* L., Alzheimer's disease