

ABSTRACT

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Title of Rigorous Thesis: **Natural substances and their biological activity. Screening of alkaloid plants on human cholinesterases inhibition**

Key words: cholinesterase inhibition, Alzheimer disease, plant extract

Ten herbs were screened for cholinesterase inhibition activity within searching new anti-Alzheimer agent. These plants are traditionally used as herbal remedies for various diseases and they could be sources of new potential natural compounds. For this reason, ethanolic and alkaloidal extracts plants were prepared and their ability to inhibit human cholinesterases inhibition was determined. For the extraction *Papaver somniferum* immature capsules, *Euonymus europaeus* fruits, *Papaver orientale* leaves, *Magnolia officinalis* leaves, *Lycopodium clavatum* aerial parts, *Laurus nobilis* leaves, *Fritillaria imperialis* bulbs, *Flueggea suffruticosa* aerial parts, *Uncaria tomentosa* bark, and *Evolvulus alsinoides* aerial parts were chosen.

For the determination of human cholinesterase inhibitory activity *in vitro* modified Ellman's method was used. Only two alkaloidal plant extracts could be considered as potential source of HuBuChE inhibitors; any of extract inhibited AChE significantly. *Papaver orientale* leaves alkaloidal extract was the strongest inhibitor of HuBuChE with IC₅₀ value of 6,03 µg/ml, alkaloidal extract of *Fritillaria imperialis* bulbs also significantly inhibited HuBuChE with IC₅₀ values 11,39 µg/ml. Other extracts were considered inactive (IC₅₀ ≥ 100 µg/ml). Any of extracts did not reached activity of used standards.