Research in Pharmaceutical Sciences, 2012;7(5)
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Identification of anticholinesterase compound from *Berbers integrima*, *Rheum ribes* and *Levisticum officinale*

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Background and Aims: The present study was designed to investigate the acetylcholinesterase inhibitory compound from Berbers integrima, Rheum ribes and Levisticum officinale.
Methods: Initially dried powder of 100 plants were extracted successively in Methanol and tested for the presence of acetylcholinesterase inhibitory activity. Among them Levisticum officinale, Berbers integrima and Rheum ribes have inhibitory activity on mentioned enzyme. We identified the active compound of these three plants by thin layer chromatography (TLC) bioautography. TLC chromatograms revealed the presence of secondary metabolites in these plants. The phytochemical tests carried out on the active methanolic extracts made it possible to emphasize the various phytochemical groups presents in the plants.
Results: Phytochemical analysis of 3 active extracts demonstrated the presence of common phytoconstituents like terpenoides, alkaloids and phenols. Our findings indicated that the inhibitory activity of Levisticum oficinale maybe due to the presence of some terpenoide compounds in this plant. The inhibitory effect of Rheum ribes maybe due to both terpenoides and alkaloids and the inhibitory effect of Berberis integrima maybe totally due to presence of compounds belong to alkaloids in these plant.
Conclusions: Results of this study showed that the alkaloid and terpenoid compounds are probably main responsible for the acetylcholinesterase inhibitory activity of these plants. Therefore these plants offer a unique candidate to find out potential new inhibitor for acetylcholinesterase enzyme.

Keywords: Acetylcholinesterase; Alkaloids; Terpenoids; *Levisticum officinale*; *Berbers integrima*; *Rheum ribes*