

**PP63. IN VITRO SCREENING FOR ACETYLCHOLINESTERASE  
INHIBITORY ACTIVITY OF *DYSPHANIA BOTRYS*, *LOTUS  
CORNICULATUS*, *NOAEA MUCRONATA*, *VICIA CRACCA***

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Dementia, a term used for several diseases that affects memory, thinking, and the ability to perform daily activities, is the 7th leading cause of death, according to World Health Organization data. It affects more than 55 million of people worldwide, 60% of whom live in low- and middle-income countries. Alzheimer's is the most common type of dementia and affects more than half of cases. Clinical studies on Alzheimer's disease highlight the neurotransmitter hypothesis, also known as the cholinergic hypothesis, which is the earliest theory regarding the pathogenesis of the disease.

Taking advantage of the richness of chemical structures in natural sources is one of the smartest approaches in the discovery of new drug candidate molecules. For this purpose, the acetylcholinesterase enzyme inhibitory activities of *Dysphania botrys* (L.) Mosyakin & Clemants, *Lotus corniculatus* L. var. *tenuifolius* L., *Noaea mucronata* (Forssk.) Aschers. et Schweinf. ssp. *mucronata*, *Vicia cracca* L. ssp. *stenophylla* Vel. were assessed by Ellman's colorimetric assay. *n*-Hexane, dichloromethane, ethyl acetate, and *n*-butanol extracts of all plants, which were prepared by the partition of methanolic extracts by the corresponding solvents, remaining water parts, and crude methanolic extracts were used for the determination of the enzyme inhibitory activity.

Dichloromethane extract of *D. botrys* between the 30-90 µg/mL concentrations, exerted the highest inhibitory activity with the maximum inhibitory value of 49.9 %. Metabolites of active extracts that may be responsible for the activity deserve to be investigated and further studies are needed.

**Keywords:** Alzheimer's disease, natural sources, Ellman's method, enzyme inhibition.