

## ABSTRACT

### **Acetylcholinesterase Inhibitory Activity of the Ethyl Acetate Subfraction of *Senna spectabilis* L. Leaves**

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Alzheimer's disease (AD) is a progressive, fatal and unknown cause of gradual dementia which characterized by loss of cognitive and physical function, usually with symptoms of behavioral changes (DiPiro *et al.*, 2017). In 2019, it was estimated that 50 million people suffered from AD and this will continue to increase until 2050 (ADI, 2019). There are several strategies used in the treatment of AD, one of which is the use of the acetylcholinesterase (AChE) inhibitors. In a preliminary study, several plants extract and fractions were screened for their AChE inhibitory activities, and the results indicated that the ethyl acetate fraction of *S. spectabilis* plants had a high inhibition against AChE. The purpose of this study is to determine the inhibitory of the ethyl acetate subfractions from the leaves of *S. spectabilis* against AChE enzyme. Vacuum Liquid Chromatography (VLC) method was used for fractionation by using gradient elution with a combination of the mobile phase of n-hexane, ethyl acetate and methanol in order of increasing polarity. Fourteen subfractions were obtained from VLC and were subjected to AChE inhibitory assay using Ellman's method. According to the results, subfractions 13 and 14 gave percent inhibition of more than 80%. The IC<sub>50</sub> values were determined for subfractions 13 and 14, which showed the strongest activity on subfraction 14 with IC<sub>50</sub> value of  $9,99 \pm 0,15 \mu\text{g/mL}$ . From this study, it can be concluded that the ethyl acetate subfractions of *S. spectabilis* leaves have acetylcholinesterase inhibitor activity.

**Keywords:** *Senna spectabilis*, Alzheimer's Disease, Percentage of Inhibiton, Acetylcholinesterase Inhibitor