Ecophysiology and Phytochemistry of Medicinal and Aromatic Plants
EPPMAPs

Evaluation of Antioxidant Activity and Inhibition Capability of α-glucosidase of Extracts of *Malva neglecta* and *Althaea officinalis*

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ABSTRACT

Medicinal herbs are rich sources of bioactive compounds with antioxidant activity and they can also retard the absorption of glucose by the inhibition of carbohydrate hydrolyzing enzymes and is one of the therapeutic approaches to decrease postprandial hyperglycemia. This research aimed to evaluate the antioxidant activity and alpha-glucosidase inhibitory activity of extract of *Malva neglecta* and *Althaea officinalis***.** Plant extracts were performed using the maceration process by ethanol and antioxidant activity was evaluated by ABTS•+ radical scavenging assay and alpha-glucosidase inhibitory activity with pNPG substrate at different concentrations of the extracts (6.25, 12.5, 25, 50, and 100 mg/mL) were performed. Results revealed that increasing the concentration of ethanolic extract of *Malva neglecta* and *Althaea officinalis* yielded a higher antiradical activity. For antiradical activity, IC_{50} values of the ethanolic extract of *Malva neglecta* and *Althaea officinalis* were calculated as 52.90 and 68.00 mg/mL, respectively, which represents the ethanolic extract of Malva neglecta has more antiradical activity. The results showed that increasing the concentration of ethanolic extract of Malva neglecta and Althaea officinalis caused a significant increment in the alpha-glucosidase inhibitory activity. Data showed that alpha-glucosidase inhibitory activity by the ethanolic extract of Malva neglecta (IC_{50} = 76.17 mg/mL) was significantly higher than the ethanolic extract of Althaea officinalis (IC_{50} = 304.12 mg/mL). Generally, the results of this research showed that ethanolic extracts of *Malva neglecta* and *Althaea officinalis* due to their inhibition of the alpha-glucosidase and antioxidant properties can be used as substitutes for chemical food additives.

***Keywords*:** Antioxidant effect, Alpha-glucosidase, *Malva neglecta*, *Althaea officinalis*.