

Determination of in vitro Antioxidative Activity of Aster yomena (Kitam.) Honda

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Abstract : Oxidative stress that results from overproduction of free radicals can lead to pathogenesis of human diseases including cancer, neurodegenerative diseases, and cardiovascular disease. Aster yomena (Kitam.) Honda (A. yomena) belonging to Compositae family is a perennial plant, and it has anti-inflammatory, anti-asthmatic and anti-obesity effects. In this study, we investigated the antioxidative effect of A. yomena by measuring 2, 2-diphenyl-1-picrylhydrazyl (DPPH), hydroxyl radical ($\cdot\text{OH}$) and superoxide radical (O_2^-) scavenging activities in vitro. A. yomena was extracted with ethanol and then partitioned with n-hexane, methylene chloride (CH_2Cl_2), ethyl acetate (EtOAc) and n-butanol (n-BuOH). In DPPH radical scavenging assay, the concentration of A. yomena from 10 to 100 $\mu\text{g}/\text{mL}$ dose-dependently raised the inhibition of DPPH oxidation. Especially, EtOAc fraction of A. yomena showed the highest DPPH radical scavenging activity among other fractions. The $\cdot\text{OH}$ radical scavenging activities of the extract and four fractions of A. yomena were increased by over 80% at a concentration of 50 $\mu\text{g}/\text{mL}$. Especially, the IC_{50} value of EtOAc fraction was 0.03 $\mu\text{g}/\text{mL}$ that is the lowest value compared with the values of other fractions. In addition, we found that the EtOAc fraction of A. yomena was showed to be better at O_2^- radical scavenging than other fractions. Taken together these results, we suggested that A. yomena, especially EtOAc fraction, can be used as a natural antioxidant against free radicals. Acknowledgements: This research was supported by Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (NRF-2016R1D1A1B03931593).

Keywords : Aster yomena (Kitam.) Honda (A. yomena), free radicals, antioxidant, EtOAc fraction

Conference Title : ICFNLS 2018 : International Conference on Food, Nutrition and Life Science

Conference Location : Bangkok, Thailand

Conference Dates : January 18-19, 2018