

Comparison Analysis of Biological Activities of Three *Sedum* species

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Sedum kamchaticum, *Sedum middendorffianum* and *Sedum takesimense* belong to the *sedum* species. Especially, *Sedum takesimense* is a Korean native species growing only on Ullenung-do. Few studies for the biological activities of these plants have been reported. In this study, we examined biological activity and the contents of functional components of the aerial part and the root part of *Sedum kamchaticum*, *Sedum middendorffianum* and *Sedum takesimense*. As the results, the roots of *Sedum takesimense* showed the highest total phenolic contents (TPC : 13040 ± 50.0 mg GAE · 100 g⁻¹), and the aerial part of *Sedum takesimens* showed the highest total flavonoid contents (TFC : 2722.2 ± 107.1 mg CAE · 100 g⁻¹). Meanwhile, *Sedum middendorffianum* exhibited the highest anti-oxidant activity (DPPH RC₅₀ value of aerial part : 50.69 ± 0.75 μg · mL⁻¹, DPPH RC₅₀ value of root part : 27.27 ± 0.55 μg · mL⁻¹; ABTS RC₅₀ value of aerial part : 11.32 ± 0.38 μg · mL⁻¹, ABTS RC₅₀ value of roots part 5.54 ± 0.02 μg · mL⁻¹). The root part of *Sedum middendorffianum* showed the potent alpha glucosidase inhibitory activity (AGI IC₅₀ : 60.69 ± 0.72 μg · mL⁻¹). In order to elucidate active principle of *Sedum middendorffianum* that was shown the most potent antioxidant and anti-diabetic activities, the methanol extract of *Sedum middendorffianum* was fractionated with various solvents according to the polarity successively. As a result, EtOAc fraction of *Sedum middendorffianum* showed the highest contents of functional components (TPC : 16245.8 ± 1025.7 mg GAE · 100 g⁻¹, TFC : 4850.4 ± 182.9 mg CAE · 100 g⁻¹). And it also showed excellent anti-oxidant activities (DPPH RC₅₀ : 14.0 ± 0.6 μg · mL⁻¹, ABTS RC₅₀ : 3.4 ± 0.1 μg · mL⁻¹) and anti-diabetic activity (AGI IC₅₀ : 79.0 ± 2.2 μg · mL⁻¹). Above results suggest that *Sedum middendorffianum* can be developed to health functional material as a plant resource with potent antioxidant activity.