

## Screening of Antioxidant Activities of the Extracts from Endemic Plants

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Ionizing radiation is a well-known carcinogen due to the resulting oxidative damage, and the molecule most often reported to be damaged by this physical agent is DNA. About 60–70% of cellular DNA damage produced by ionizing radiation is caused by OH, formed from the radiolysis of water. Oxidative stress occurs when there is an excessive free radical production and/or low antioxidant defense, and results in the chemical alterations of bio-molecules causing structural and functional modifications. The generation of the reactive oxygen metabolites plays an important role in the pathogenesis of the irradiation-induced tissue injury. An extensive literature review implicates cellular DNA as the primary target for the biological and lethal effects of ionizing radiation. Besides DNA, lipids and proteins are also attacked by free radicals.

Antioxidant defenses normally protect biological objects against oxidative stress. Some naturally occurring antioxidants such as  $\alpha$ -tocopherol, ascorbic acid and carotenoids have been used in the food industry and the preventive medicine. However, even though  $\alpha$ -tocopherol and other naturally occurring antioxidants are considered to be active in eliminating the reactive oxygens and controlling the toxic effects, they have been limited of their usage as antioxidants because of low effectiveness. In that context, we have assessed the antioxidant activity of Korean wild plants, Salicornia herbacea, Ixeris dentata, Aster scber, Chrysanthemum coronarium, Allium tuberosum, Asarum sieboldii, Tetragonia tetragonoides, Youngia sonchifolia and Allium monanthum to develop a new safer type of antioxidant.

The antioxidative effects of water- and ethanol-extracts from plants were analyzed with 2,2-diphenyl-1-picrylhydrazyl (DPPH) and comparisons were made on the basis of RC50 value which indicated the amount required for 50% reduction of DPPH. The RC50 of ascorbic acid, well-known antioxidant was 0.0074mg/ml, While the RC50 of water extracts from S. herbacea, I. dentata, A. scber, C. coronarium, A. tuberosum, A. sieboldii, T. tetragonoides, Y. sonchifolia and A. monanthum were 0.1683, 0.0410, 0.0266, 0.0976, 0.3008, 0.2782, 0.1569, 0.0674 and 0.4772 mg/ml, respectively. The RC50 of the ethanol extracts from S.

herbacea, I. dentata, A. scaber, C. coronarium, A. tuberosum, A. sieboldii, T. tetragonoides, Y. sonchifolia and A. monanthum were 0.0392, 0.0229, 0.0862, 0.0870, 0.2338, 0.2344, 0.1264, 0.0693 and 0.2992 mg/ml, respectively.

These results has revealed that we will be able to obtain a natural antioxidant with higher effectiveness than the established antioxidants if the extracts of I. dentata, A. scber and Y. sonchifolia are subject to further purification.