Evaluation of Enzymes and Non-enzymatic Antioxidants of *Scopolia parviflora* on Antioxidant Defense Systems

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The ground-state of molecular oxygen is essential to many indispensible metabolic processes of all aerobic life forms ranging from prokaryotes, protists, plants and fungi to animals. The reduction of molecular oxygen in all aerobic eukaryotic cells results in intermediates ($O_2^{\cdot}$, H_2O_2 and $^{\cdot}OH$) that are highly toxic. As it was revealed that free radicals play an important role in oxidative stress, engaged in various diseases such as cancer, Alzheimer, diabetes. non-enzymatic antioxidants and antioxidant enzymes provide the primary defense against extracellular and intracellular free radicals. The non-enzymatic antioxidants and antioxidant enzymes from the extracts of *Scopolia parviflora* were examined in other to utilize the discovery of natural product cancer chemopreventive agents. To measure Enzymes and non-enzymatic antioxidative activities, the extracts from *scopolia parviflora* were carried out with DPPH free radical scavenging activity and peroxidase(POD) and superoxide dismutase(SOD) activity. The purification and identification of antioxidant compounds were performed by silica-gel column chromatography and GC/MS. The DPPH free radical scavening activity on plant position of *Scopolia parviflora* was high such as root, leaf and stem, respectively. In particular, IC_{50} value of DPPH Free radical scavening activities of Root and leaf were 25.72 and 26.73($\mu g/ml$) and those were higher than that of stem. In fraction phases, the DPPH Free radical scavening activity on extraction fraction of EtOAc showed higher than that by extraction fraction with 80% MeOH. The DPPH activity of silica-gel fraction No.5 through Silicagel column chromatography showed about 6.7times higher than that of ethyl acetate fraction. Seventeen compounds of antioxidants were identified from extracts of *Scopolia parviflora*, and the content of atropine and scopolamin known an anaesthetic medicine were the highest

in the compounds. The content of atropine and scopolamine on root was the highest in the plant position. The contents of those on plants after dying of shoot, such as winter, were 3.5 times higher than that of maximum growing stage, such as summer. POD activity of root on plant positions was higher than that of leaf and stem. The tendency of SOD activity on plant positions were similiar to that of POD. The numbers of Isozyme pattern of POD and SOD showed 4 and 5, respectively.