E235 Retardation of Senescence by Salicylic Acid in the Leaves of *Arabidopsis thaliana*

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It was recently reported that salicylic acid(SA), a natural plant signal molecule, could inhibit the 1-aminocyclopropane-1-carboxylic acid(ACC) oxidase which is a key enzyme in ethylene biosynthesis in plants. Thus, it seems that SA is likely to be involved in the regulation of plant senescence. In this study, therefore, the biochemical effects of SA on the leaf senescence of *A. thaliana* were investigated in parallel with the assay of antioxidant enzymes. SA treatment significantly inhibited the malondialdehyde production and the chlorophyll loss in senescing leaves during 3 days dark incubation compared to controls. The analysis of antioxidant enzymes showed that whereas SA treatment caused a decrease in catalase, there were increases in guaiacol peroxidase and glutathione reductase activities. So, it can be assumed that SA and H_2O_2 may be involved in the induction of antioxidant enzymes leading to the retardation of senescence.

E236 Effects of Oxidative Stress on Superoxide Dismutase Activity and Photochemical Efficiency of Potosystem II in Leaves of *Acanthopanax koreanum* Plants

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The effects of temperature stress and paraquat on the superoxide dismutase (SOD) activity and the photochemical efficiency of Photosystem (PS) II were studied in the leaves of *Acanthopanax koreanum* plants. Two isoenzymes (SOD 4 and SOD 6) ubiquitous in Araliaceae plants were detected most densely in *A. koreanum* leaves. These two isoenzymes were respectively identified as Fe-SOD and CuZn-SOD, based on selective inhibition with CN^- or H_2O_2. When the leaf discs were floated on the water, the SOD activity of leaf discs increased at 4℃ and 28℃. However, the Fv/Fm values of leaf discs fell remarkably with the rise of incubation temperature. In the presence of Paraquat, the SOD activity of leaf discs increased more significantly at all temperature. The Fv/Fm value did not change at 35℃ while it fell slightly at 4℃. These results indicate that *A. koreanum* plants are tolerant to oxidative stress.