

**Free Radical Scavenging and Antioxidant Activities of Water Extracts
from *Amannia multiflora*, *Amannia coccinea*, *Salix gracilistyla*
Inhabiting Along the Nakdong River (Republic of Korea)**

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Plant-derived antioxidants are used as a healthy diet and are known to inhibit various human diseases. In this study, we investigated free radical scavenging and antioxidant activity of extracts from three plants (*Amannia multiflora*, *Amannia coccinea* and *Salix gracilistyla*) with the most DPPH (2,2-diphenyl-1-picrylhydrazyl) radical scavenging activity from 196 plant extracts inhabiting along Nakdong River in Republic of Korea. The three extracts also have strong total antioxidant activity. Moreover, the extracts inhibited hydrogen peroxide (H₂O₂)-induced reactive oxygen species production and depolarized mitochondrial membrane potential in RAW264.7 macrophages. In zebrafish larvae, 2',7'-dichlorodihydrofluorescein diacetate (DCFDA) fluorescent intensity, induced by H₂O₂, was markedly reduced by the extracts of *A. multiflora*, *A. coccinea* and *S. gracilistyla*. Meanwhile, the extracts were upregulated Nrf2 and HO-1 expression, and an HO-1 inhibitor reversed the extract-induced oxidative responses both *in vivo* and *in vitro*. The data suggest that the extracts of *A. multiflora*, *A. coccinea*, and *S. gracilistyla* exert potential free radical scavenging and antioxidant capacities both *in vivo* and *in vitro* by activating the Nrf2/HO-1 signaling pathway.

Key words: Antioxidant, Oxidative stress, DPPH, Nrf2, HO-1

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