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Neuroprotective effects of aqueous extracts of *Uncaria tomentosa: Insights from* 6-OHDA induced cell damage and transgenic *Caenorhabditis elegans* model

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Abstract

Previous pharmacological studies have indicated that AC11 (a standardized aqueous extract of U. tomentosa) has beneficial effects on DNA repair and immune function. However, its benefits go beyond this. The present study utilized electron spin resonance (ESR) and spin trapping technique, as well as the 6-OHDA-induced cell damage and transgenic Caenorhabditis elegans models, towards exploring the antioxidant and neuroprotective ability of AC11. Our results showed that AC11 could scavenge several types of free radicals, especially hydroxyl radicals (60% of hydroxyl radicals were scavenged by 30 μg/ml of AC11). In SH-SY5Y cells, we found that AC11 could dose dependently protect 6-OHDA induced cell damage by increase cell viability and mitochondrial membrane potential. AC11 pretreatment also significantly decreased the level of lipid peroxidation, intracellular reactive oxygen species and nitric oxide in 6-OHDA treated cells. In NL5901 C. elegans, 10μg/ml AC11 could reduce the aggregation of α-synuclein by 40%. These findings encourage further investigation on AC11 and its active constituent compounds, as possible therapeutic intervention against Parkinson's disease.