The Anti-oxidant Effect of Extracts from the *Ambrosia trifida L.*

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Buffalo-weed (*Ambrosia trifida L.*) is a naturalized plant native to North America. Buffalo-weed disturbs the native ecosystem in korea by high reproductive rate and the growth inhibition ability of indigenous plant, and this pollen causes an allergic disease. To make the usage, one of the methods for removing buffalo-weed, the antioxidant capacity of buffalo-weed was verified. Buffalo-weed was extracted by hot water and 10~100% ethanol, After that, total polyphenol content, ABTS radical scavenging activity and electron donating ability were determinated. As a result of measuring the total polyphenol content of buffalo-weed extracts, extracts of hot water was 12.99 GAE /g and 70% ethanol of buffalo-weed was 17.50 GAE /g. ABTS radical scavenging activity of hot water and 10~80% ethanol extracts of buffalo-weed was close to 99%. As a result of measuring the electron donating ability of buffalo-weed extracts, hot water extract was shown 71.66%. The 70% and 90% ethanol extracts was shown each 70.54% and 86.15%. Based on this result, antioxidant activities of hot water extract and 70% ethanol extract of buffalo-weed was determinate by experiments of electron donating ability, ABTS radical scavenging and antioxidant protection factor. Electron donating ability of hot water extract and 70% ethanol extract of buffalo-weed was shown each 64.68%, 66.10% at 200 ㎍/㎖ phenolic concentration. ABTS radical scavenging activity of extracts of buffalo-weed was shown each 99.50%, 92.54% at 100 ㎍/㎖ phenolic concentration. PF value of buffalo-weed extracts was shown each 2.47 PF, 2.94 PF at 200 ㎍/㎖ phenolic concentration, and this results is higher than 2.54 PF in the positive control BHA.

**Key words** : Buffalo-weed*, Ambrosia trifida L.*, naturalized, disturb, anti-oxidant

[한글 번역본]

단풍잎 돼지풀 추출물의 항산화 효과

단풍잎돼지풀(Buffalo-Weed;*Ambrosia trifida* L.)은 북아메리카 원산의 귀화식물로 높은 번식력과 토착생물의 성장을 억제하는 능력을 통하여 한국의 생태계를 교란하고 있으며, 꽃가루는 알레르기성 질병을 일으킨다. 단풍잎돼지풀을 제거하기 위한 방법 중 하나로 단풍잎돼지풀의 사용처를 만들기 위하여 단풍잎돼지풀의 항산화 능력을 검증하였다. 단풍잎돼지풀을 열수 및 10~100% ethanol로 추출한 후 각 추출물의 총 폴리페놀 함유량과 ABTS radical 소거능, 전자공여능을 측정하였다. 총 폴리페놀 함량 측정 결과 단풍잎돼지풀 열수 추출물의 총 폴리페놀 함량은 12.99 ㎎ GAE /g (GAE: Gallic Acid Equivalents)이었으며, 70% ethanol 추출물의 총 폴리페놀 함량은 17.50 ㎎ GAE /g이었다. 단풍잎돼지풀 열수 추출물 및 10~80% ethanol 추출물들의 ABTS radical 99%에 가까웠다. 단풍잎돼지풀 추출물들의 전자공여능을 측정한 결과 단풍잎돼지풀 열수추출물의 전자공여능은 71.66%이었다. 단풍잎돼지풀 70% ethanol 추출물과 90% ethanol 추출물의 전자공여능은 각각 70.54%, 86.15%이었다. 이와 같은 결과를 토대로 하여 단풍잎돼지풀 열수 추출물과 70% ethanol 추출물의 폴리페놀 함량에 따른 항산화 활성을 전자공여능, ABTS radical 소거능, antioxidant protection factor 실험을 통하여 측정하였다. 단풍잎돼지풀 열수 추출물과 70% ethanol 추출물의 전자공여능은 200 ㎍/㎖ 페놀 농도에서 각각 64.68%, 66.10%이었다. 단풍잎돼지풀 열수 추출물과 70% ethanol 추출물의 ABTS radical 소거능은 100 ㎍/㎖ 페놀농도에서 각각 99.50%, 92.54%로 높은 저해율을 확인하였다. 단풍잎돼지풀 열수추출물과 ethanol 추출물의 PF값은 200 ㎍/㎖ 페놀 농도에서 각각 2.47 PF, 2.94 PF 로 positive control인 BHA의 2.54 PF보다 높은 효능을 나타내었다.