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***Persicaria filifome*, *Clematis trichotoma* 추출물의 Comet Assay를 이용한 항산화 효과**

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최근 관심이 되고 있는 천연물의 생리활성 및 항산화능을 200여종의 약초와 70여종의 산채의 methanol 추출물로부터 탐색하였다. 먼저 시료의 항산화 활성을 검색하기 위해 DPPH radical 소거능을 측정하였다. 그 결과 *Persicaria filifome*, *Ainsliaea acerifolia*, *Lycopus ramosissimus* var. *Japonicus*, *Aster ageratoides*, *Salix gracilistyla*, *Clematis trichotoma*의 IC₅₀ 값이 각각 24.36, 29.12, 33.68, 43.88, 45.51, 55.81 µg/ml로 나타났다. 그리고 항산화 활성 검정에 중요한 지표인 지질과산화 억제능을 측정하기 위해 in vitro상에서 mouse의 10% homogenate한 간 조직에서 TBARS생성량을 측정하였다. 그 결과 *Clematis trichotoma*, *Salix gracilistyla*, *Athyrium niponicum*, *Persicaria filifome*, *Lysimachia clethroides* 순으로 TBARS생성을 억제하였다. 이 중 DPPH radical 소거능과 지질과산화 억제능이 높은 *Persicaria filifome*와 *Clematis trichotoma*을 선별하여 Comet assay(Single Cell Gel Electrophoresis)를 통해 DNA 손상 억제능을 알아보았다. HepG₂ cell에 methanol 추출물을 농도별로 30분간 미리 적용시킨 후 25µM H₂O₂에 의해 세포내 생성된 ROS로 DNA 손상을 유도하였다 DNA손상 정도는 첨가된 추출물의 농도가 증가할수록 감소하였다.

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Biological Activities of Essential Oil from *Chamaecyparis obtusa*

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The essential oil has been investigated for the anti-bacterial and anti-oxidative activity to use additive in foods and other products. The most of essential oils has been came from medicinal herbs and edible plants for food additives. However essential oil from trees was not studied for manufactural apply. In this study, essential oil from *Chamaecyparis obtusa* was used to examined the biological activities. *Chamaecyparis obtusa* is one of the most popular needle-leaf trees in East-Asia area. The essential oil from *Chamaecyparis obtusa* was investigated for anti-oxidative, anti-inflammation and anti-bacterial activity respectively. Growth inhibitory effect of the oil on the bacteria was evaluated with MIC(Minimum inhibitory concentration), IC₅₀(Inhibitory concentration 50%), and paper disc method. In those method, we used 2 kind of gram positive strains and 2 kind of gram negative strains. Gram positive strains were *B. subtilis* and *S. aureus*. Gram negative strains were *E. coli* and *P. aeruginosa*. Anti-bacterial effects showed that gram positive strains represented expander growth inhibition effect against essential oil from *Chamaecyparis obtusa* than gram negative strains. Anti-oxidative effect was investigated with DPPH((1,1-diphenyl-2-picrylhydrazyl) in methanol based and IC₅₀ was 0.78% to compare the BHT(IC₅₀, 0.06%) which is chemical compound in anti-oxidants. In the other hand, we also investigated anti-inflammation effect with rat(edema inhibition) and hyaluronidase inhibition in test tubes. In *in vivo* test using rat, essential oil from *Chamaecyparis obtusa* showed 75% anti-inflammation effect against control group. And in *in vitro* test, the oil showed 55% inhibition effect for the control enzyme activity. Our results suggest that the essential oil from *Chamaecyparis obtusa* has effects on anti-bacterial, anti-oxidative and anti-inflammation in *in vitro* and *in vivo*. In the future study, essential oil from *Chamaecyparis obtusa* has to be examine to find the expected synergistic effect with other compounds and essential oils.