Ⅱ-19

발효더덕의 항산화활성 효과

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The effect of fermented *Codonopsis lanceolata* on Anti-oxidant Activities

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Objectives

Codonopsis lanceolata(CL) is used as a treatment for cough, lung fever and discharge of phlegm. However, *Codonopsis lanceolata* is known as food than medicine. Therefore, the purpose of this study was to investigate the possibility of the enhancement of biological activities of *Codonopsis lanceolata*.

Materials and Methods

○ Materials

Hoengsung *Codonopsis lanceolata*(H.CL), Fermented *Codonopsis lanceolata*(F.C-L), Jeju island *Codonopsis lanceolata*(J.CL), China *Codonopsis lanceolata*(C.CL).

○ Mathods

The *Codonopsis lanceolata* cleaned and dried before being extracted with 10 times of water for 24h at 100℃. DPPH(2,2-diphenyl-1-picrylhydrazyl) radical(0.1mM) was added to different concentrations of the four extracts (0.2, 0.4, 0.6, 0.8, 1.0 ㎎/㎖). The change of the surface of the fermented samples observed by Scanning Electron Microscope (SEM).

Results

The extracts yields for each samples were measured as 34.22%, 38.36%, 34.19% and

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36.40% in order of Hoengsung, Fermented, Jeju and China *Codonopsis lanceolata*. The DPPH(0.1mM) scavenging activity(%) was determined as 17.90, 74.89, 31.68 and 15.84 % in order of Hoengsung, Fermented, Jeju, China *Codonopsis lanceolata* at 1 ㎎/㎖. As a results, the *Codonopsis lanceolata* have DPPH radical-scavenging activities. And fermented CL showed higher scavenging activity than the other. In the SEM, the surface tissue size of the fermented CL increased than other. May be the microbial act the cause of tissue change. Therefore, It is expects that a follow up study on F.CL through developing processed food and evaluation of their functional properties would provide useful information as a source of medicinal foods.

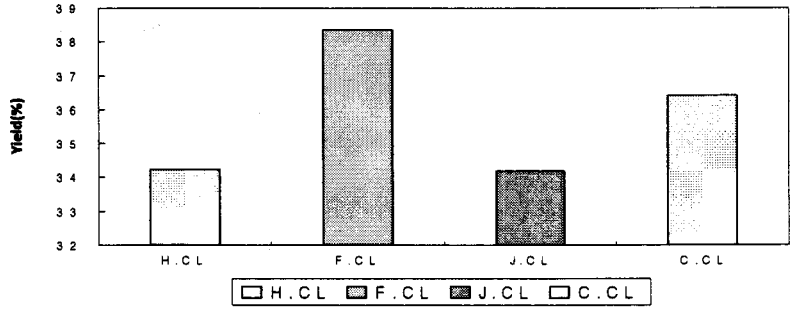

Fig. 1. Extract of yields of *Codonopsis lanceolata* on aqueous extracts at 100℃(H.CL: Hoengsung *Codonopsis lanceolata*, F.CL: Fermented *Codonopsis lanceolata*, J.CL: Jeju island *Codonopsis lanceolata*, C.CL: China *Codonopsis lanceolata*)

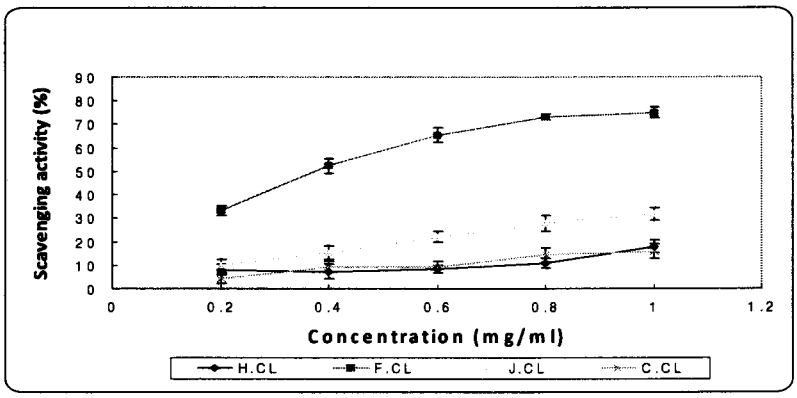

Fig. 2. Scavenging activities of *Codonopsis lanceolata* on DPPH Radicals(H.CL: Hoengsung *Codonopsis lanceolata*, F.CL: Fermented *Codonopsis lanceolata*, J.CL: Jeju island *Codonopsis lanceolata*, C.CL: China *Codonopsis lanceolata*).

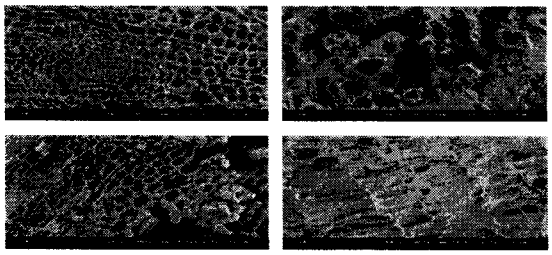

Fig. 3. Low level scanning electron microscope(LVSEM) image of a representative portion of *Codonopsis lanceolata*(A: Hoengsung *Codonopsis lanceolata*, B: Fermented *Codonopsis lanceolata*, C: Jeju island Codonopsis lanceolata, D: China *Codonopsis lanceolata*).