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Comparison of Biological Activities of *Phelinus linteus* and *Hericium erinaceum* mycelium cultured fresh Ginseng according to extraction process

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Objectives

The purpose of this study was to investigate the possibility of enhancement of biological activities of *Phelinus linteus* and *Hericium erinaceum* mycelium cultured ginseng according to different extraction processes.

Materials and Methods

The fresh ginseng were fermented by mycelium of *Phelinus linteus* and *Hericium erinaceum*. The whole body was extracted by water at 121℃ for 60 minutes, and then treated with ultrasonification for 20 minutes. The extracts were freeze-dried before use.

Results

1. The activity of the tyrosinase was inhibited up to 96% in adding the highest concentration of 1.0 mg/ml of the pretreated extracts with ultrasonification. Better tyrosinase inhibition activity was observed in adding the extracts cultured by *H. erinaceum* than those by *P. linteus* and from conventional extraction process.
2. In this study, electron donating ability was established that ginseng cultivated with *H. erinaceum* adding ultrasonification extraction process has the highest activity.
3. It was also found that higher phenolic compounds were extracted from the ginseng cultivated with *P. linteus* mycelium as 9.83 mg/ml by untrasonification extraction.
4. Inhibition of α-glucosidase were increased in the range of 22.7 to 82.9% in adding the extracts from ultrasonification extraction process. Especially, the extracts cultured by *P. linteus* showed the highest inhibition ratio.

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5. It can be concluded that, in general, mycelium cultured ginseng by ultrasonification extraction process showed better biological activities than mycelium itself. *H. erinaceum* mycelium seems to be more effective in improving the biological activities of fresh ginseng than that by *P. linteus* mycelium.

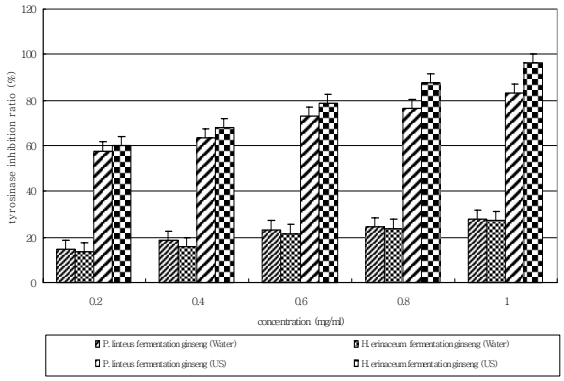

Fig 1. Inhibtion ratio of tyrosinase activities by Phelinus linteus and Hericium erinaceum.mycelium cultured ginseng by two different extraction processes: Water, conventional water extraction at 121′C for 20min; US, treating ultrasonification for 60min after water extraction.

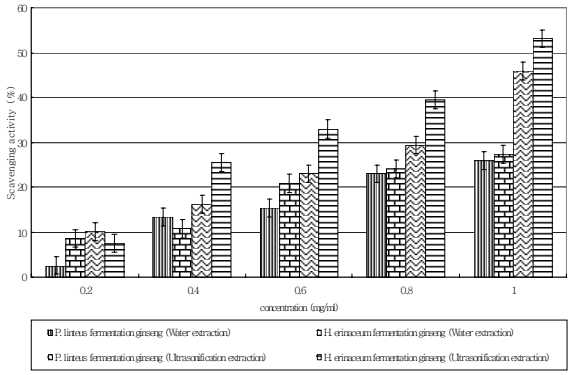

Fig. 2. Electron donating ability by Phelinus linteus and Hericium erinaceum.mycelium cultured ginseng by two different extraction processes: Water, conventional water extraction at 121′C for 20min; US, treating ultrasonification for 60min after water extraction.

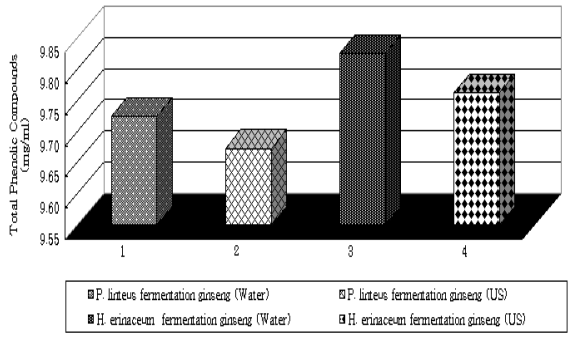

Fig. 3. Tatal phenolic compounds by Phelinus linteus and Hericium erinaceum.mycelium cultured ginseng by two different extraction processes: Water, conventional water extraction at 121′C for 20min; US, treating ultrasonification for 60min after water extraction.

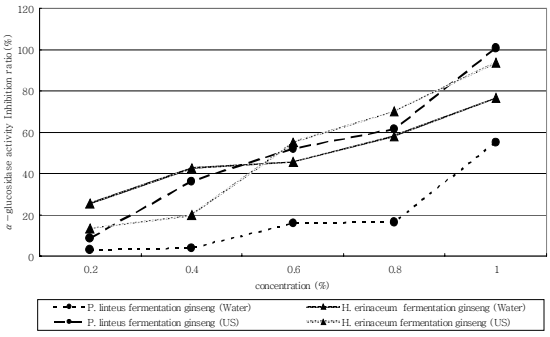

Fig. 4. The α-glucosidase inhibition activity by Phelinus linteus and Hericium erinaceum.mycelium cultured ginseng by two different extraction processes: Water, conventional water extraction at 121′C for 20min; US, treating ultrasonification for 60min after water extraction.