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복합 유산균 발효를 통한 저가 인삼으로부터 저분자 진세노사이드 생산

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The Production of Low Molecular Ginsenosides from Low Quality Fresh Ginseng by Mixed Lactic Acid Bacteria Fermentation

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실험목적 (Objectives)

This study was to show the conversion of low molecular ginsenoside from low quality fresh ginseng by mixed lactic acid bacteria fermentation of *Bifidobacterium* Longum B6 and *Lactobacillus* casei.

재료 및 방법 (Materials and Methods)

The seed culture of both *B.* Longum B6 and and *L.* casei were cultured at 36℃for 24h.

실험결과 (Results)

It was found that the low molecule ginsenoside, such as Rd, Rb1, Rc and Rb2 were hydrolyzed to low molecular ginsenosides, Rh2, Rg3 and CK after mixed lactic acid bacteria fermentation, showing the conversion yields of Rh2 of 56.07%, Rg3 of 12.03% and CK of 77.11%, respectively. The ginsenosides concentrations were estimated as 1.442mg/g of Rg3, 1.801mg/g of Rh2 and 1.302mg/g of CK, respectively. After mixed lactic acid bacteria fermentation. However, single lactic acid bacteria (*B.* Longum B6 or *L.* casei) showed lower low molecules ginsenoside production than the case of mixed lactic acid bacteria: Rg3 of 0.103mg/g, Rh2 of 0.321mg/g and CK of 0.458mg/g from the fermentation of *B.* Longum B6, and 0.225mg/g of Rg3, 1.048mg/g of Rh2 and 0.982mg/g of CK, respectively from the fermentation of *L.* casei. The result indicated that synergistic of bioconversion process by both bacteria treaty from comes

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from interaction of different enzyme origin. It was clearly shown that low molecular ginsenosides Rh2, Rg3 and CK could be efficiently converted from large molecular ginsenosides Rd, Rb1, Rc and Rb2 by synergistic effects of both mixed lactic acid bacteria.

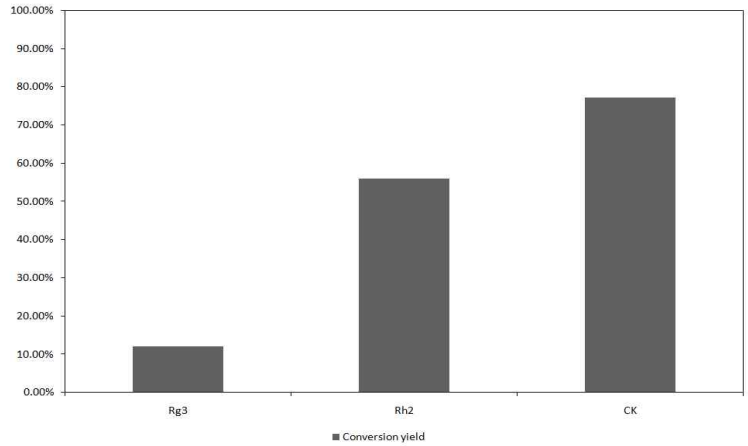

Fig. 1. The conversion yields of ginsenoside Rh2, Rg3 and CK by mixed lactic acid bacteria fermentation process.

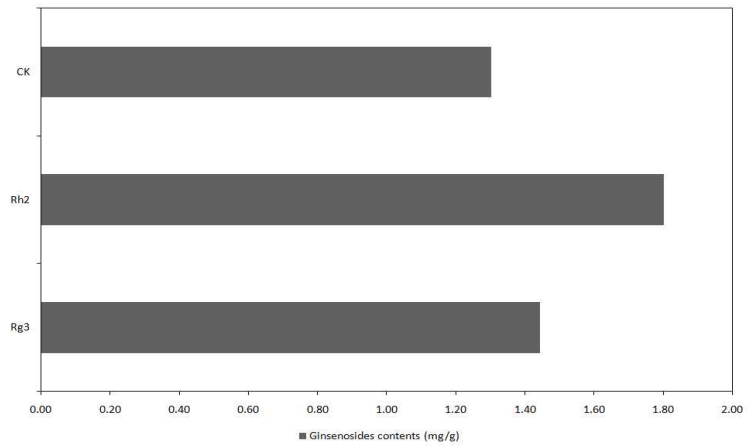

Fig. 2. The ginsenoside contents to Rh2, Rg3 and CK by mixed lactic acid bacteria fermentation process.

Table 1. Comparison of ginsenoside concentrations in low quality fresh ginseng under various fermentation organisms.

Sample conditions	Ginsenoside contents (mg/g)		
	Rg3	Rh2	CK
Mixed lactic acid bacteria	1.442	1.801	1.302
B. Longum	0.103	0.321	0.458
L. casei	0.225	1.048	0.982