

누룩치에서 분리한 Buddlejasaponin IV의 흰쥐 고지혈 및 고콜레스테롤 혈증에 대한 효과

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Inhibitory Effect of Buddlejasaponin IV Isolated from *Pleurospermum kamtschaticum* Hyperlipidemic and Hypercholesterolemic Rats

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Objectives

We previously reported the hypolipidemic effects of the triterpenoids of *Rosa rugosa* and *Allium victorialis* var. *platyphyllum* extracts. In the present study, we elucidated the hypolipidemic or hypocholesterolemic effects of *Pleurospermum kamtschaticum* traditionally used for treatment of atherosclerosis.

Materials and Methods

○ 실험재료

Pleurospermum kamtschaticum, Rats, Poloxamer-407, Triton WR-1339, Corn oil, UV-VIS spectrophotometer, UV-1201, Clinical spectrophotometer (Shimadzu)

○ 실험방법

The inhibitory effect of the MeOH extract of *P. kamtschaticum* (Umbelliferase), its fraction and its major saponin buddlejasaponin IV were tested in hyperlipidemic and hypercholesterolemic rats using four animal models induced by poloxamer-407 or using Triton WR-1339 as intrinsic inducers and by 30% corn oil or high cholesterol-diet as extrinsic. We measured serum triglyceride, total cholesterol, HDL-cholesterol and LDL-cholesterol levels as measures of its hypocholesterolemic or hypolipidemic effects.

Results and Discussion

Since the MeOH extract and the BuOH fraction of *P. kamtschaticum* were found to be active using these four hypolipidemic assays, its major saponin buddlejasaponin IV isolated from the BuOH fraction were also tested to demonstrate the active components. Buddlejasaponin IV was found to significantly inhibit hypercholesterolemia and reduced the hyperlipidemia by extrinsic and intrinsic inducers.

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In particular, buddlejasaponin IV blood thiobarbituric acid reactive substance (TBARS) and hydroxy radical levels, and increased superoxide dismutase activity in high cholesterol diet-induced rats, thus suggesting that buddlejasaponin IV reduces oxidative stress caused by a high cholesterol diet. Moreover, these effects of buddlejasaponin IV were comparable to probucol, which was used as a positive control. These results suggested that *P. kamtschaticum* which is traditionally used to treat atherosclerosis and its active major saponin buddlejasaponin IV could be used to treat hypercholesterolemia or hyperlipidemia.

* 시험성적

Figure 1.

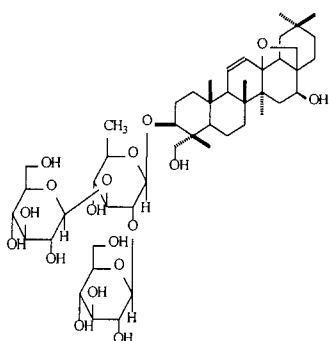


Figure 2.

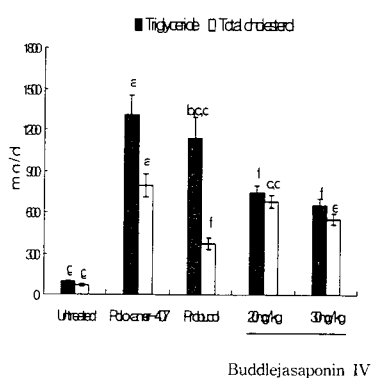


Figure 3.

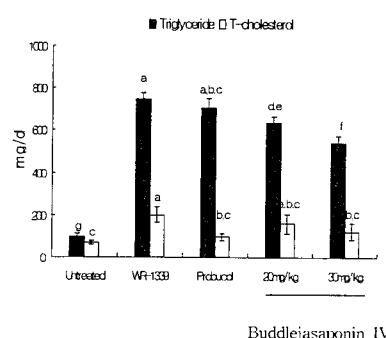


Figure 4.

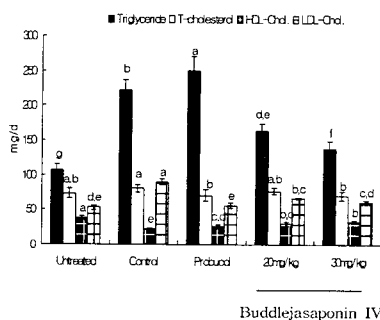


Figure 5.

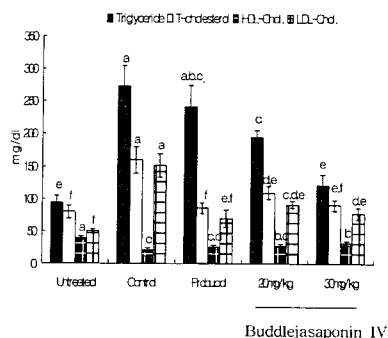


Figure 6.

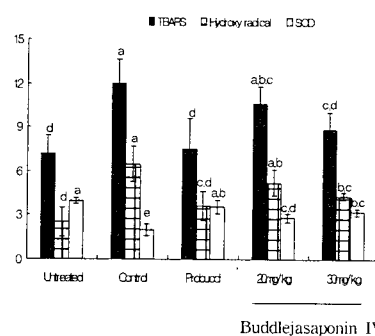


Fig. 1. Structure of buddlejasaponin IV isolated from *P. kamtschaticum*.

Fig. 2 and Fig. 3. Inhibitory effect of buddlejasaponin IV on the serum triglyceride and total cholesterol in poloxamer-407-treated rats(Fig. 2) and WR-1339 treated rats(Fig. 3).

Table 4. Inhibitory effect of buddlejasaponin IV on hypercholesterolemia of the ratinduced by 30% corn oil.

Table 5. Inhibitory effect of buddlejasaponin IV on hypercholesterolemia in rats fed a high cholesterol diet.

Fig. 6. Inhibitory effect of buddlejasaponin IV on oxidative stress in rats fed a high cholesterol diet