

葛デキストリンを用いた培地組成で培養した 葛つる由来乳酸菌 *Leuconostoc mesenteroides* の免疫賦活作用

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Immune system enhancement properties of a culture substance containing kudzu dextrin in the lactic acid bacteria *Leuconostoc mesenteroides* found in the kudzu vine

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Abstract

In the present study an isolated bacteria from the kudzu vine (*Pueraria Lobata*), identified as *Leuconostoc mesenteroides*, was determined to be a type of lactic acid bacteria. The physiological functions of heated *L. mesenteroides* were examined and the results indicated that the production of Interleukin (IL)-12 in mouse splenocytes showed a higher value than the control OK432. In addition, the result demonstrated that the test substance exhibited an immunostimulatory effect in mice. In particular, it showed a higher value when the lactic acid bacteria was cultured in kudzu starch treated with a heated enzyme instead of glucose, resulting in a heightened immune-stimulating activity.

Moreover, an anti-tumor effect was also observed in murine breast cancer 4T1 cells subcutaneously transplanted in mice. The result indicated a lower value tendency relative to the average tumor volume and weight in the group administered with the culture substance containing kudzu dextrin in comparison with an untreated group, suggesting the possibility of an anti-tumor effect. In the same study an anti-influenza virus effect was also observed in infected mice. Three days after administering a viral infection the amount of infected broncho-alveolar lavage fluid (BALF) was significantly less, and 14 days after infection neutralizing antibodies titer, as well as specific IgA in serum and BALF, was significantly elevated in comparison to the control. It was concluded that an enhancement of the living organism's immunity produced the anti-influenza viral effect and that the oral administration of the culture substance with the *L. mesenteroides* kudzu dextrin was effective in preventing influenza virus viral infection.

Keywords : 葛、*Leuconostoc mesenteroides*、インターロイキン-12、抗腫瘍作用、抗ウイルス作用
kudzu, *Leuconostoc mesenteroides*, Interleukin-12, anti-tumor effect, antiviral effect

I 緒言

葛はマメ科 *Pueraria* 属のつる性植物で、その根は葛根湯などの漢方薬の原料や吉野葛として知られた葛デンプンの原料として用いられている。また、花は二日酔いの予防などを

目的とした漢方薬の原料として、つるは葛布や工芸品として、葉は家畜の飼料などとして古来より用いられてきた。また田中の卵巣摘出マウスを用いた研究¹⁾により、つるのエタノール抽出物が骨吸収を抑制し、骨密度の減少を改善するいわゆる骨粗鬆症の予防効果のあることが明らかになった。しかし、