

OPTIMIZATION OF THE MODIFICATION OF FUNCTIONAL PUERARIN IN KUDZU BY MALTOGENIC AMYLASE

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Summary

Puerarin, the most abundant isoflavone in kudzu root, has been considered as a healthy compound. However, its natural form in kudzu possesses low water solubility and thus lessens the kudzu flour's function. To increase its solubility, we used the *Bacillus stearothermophilus* maltogenic amylase (BSMA) to modify puerarin into the soluble derivatives. Modification of puerarin was carried out by 2 steps, treated with β -amylase and BSMA respectively, using the optimization method of Box-Behnken model to determine the optimal conditions of the denaturing process. The results showed that, in the first step, kudzu powder was hydrolyzed using β -amylase under optimal conditions: 54.34°C temperature, 4.24 h reaction time, 41,46 U/g powder concentration of β -amylase. Reducing sugar content was produced up to 161.07 \pm 2.96 mg/g. In the second step, the optimal conditions were 57.47°C; 4.05 h; 15.45 U/g BSMA. The synthesized puerarin content analyzed by High Performance Liquid Chromatography (HPLC) was 7.5085 \pm 0.02 mg/g under these conditions.

Keywords: *BSMA, kudzu powder, optimization, puerarin, reducing sugar.*