

Inhibition of cardiac hypertrophy by probiotic-fermented purple sweet potato yogurt on spontaneously hypertensive rat hearts

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ABSTRACT

Cardiovascular hypertrophy is a common feature of hypertension and important risk factor for heart damage. The regression of cardiovascular hypertrophy is now considered as an important therapeutic target in reducing complications of hypertension. Therefore, the aim of this study was to investigate inhibition of cardiac hypertrophy by probiotic-fermented purple sweet potato yogurt (PSPY) with high GABA content on spontaneously hypertensive rat (SHR) hearts. Six-week-old male SHR were separated randomly and equally into four experimental groups, including sterile water, captopril, and two PSPY groups with different doses (10% and 100%) for 8 weeks. The myocardial architecture and key molecules of the hypertrophic-related pathway in the excised left ventricle from these rats were measured by histopathological analysis, hematoxylin-eosin staining and western blotting. Abnormal myocardial architecture and enlarged interstitial spaces were



observed in SHR, were significantly decreased in the captopril and PSPY treated groups compared with sterile water group. In addition, cardiac protein levels of

hypertrophic markers (ANP, BNP) and pathological hypertrophic-related pathways were highly increased in SHR hearts. However, they were totally reversed by the administration of PSPY. These findings indicated that PSPY administration may suppress the development of hypertension and even pathological cardiac hypertrophy in SHR.

KEY WORDS—cardiovascular hypertrophy; lactic acid bacteria; hypertension; fermented yogurt; GABA