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Lactobacillus reuteri GMNL-263 reduces hyperlipidaemia and the heart failure process in high-calorie diet-fed induced heart dysfunction in rats



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ABSTRACT

Probiotics are reported to provide protective health benefits against various disorders. In this study, we established a high-calorie diet animal model with a diet prepared by fortifying normal diet with soybean oil and condensed milk and the animals were supplemented with different dose of probiotic *Lactobacillus reuteri* GMNL-263(Lr263) for 8 weeks to investigate the protective function. We measured the lipid levels in plasma, liver and faecal; heart weight, function and collagen accumulation and biochemical markers of cardiac disease. Lr263 reversed high-calorie diet-induced cardiac weight gain, systolic malfunction and prevented heart inflammation by decreasing inflammation proteins NF-κB and COX-2. Moreover, Lr263 reduced cardiac eccentric hypertrophy and the levels of cardiac fibrosis markers CTGF and SP1 in high-calorie diet-fed rat hearts. Thus, Lr263 is considered as a functional food that provides anti-inflammatory, anti-hypertrophic, anti-fibrotic functions and identified specific biologic effects in reducing the characteristics of the high-calorie diet-induced progression to heart failure.

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