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Antihyperglycaemic and organic protective effects on pancreas, liver and kidney by polysaccharides from Hericium erinaceus SG-02 in streptozotocin-induced diabetic mice

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Abstract

The present work was designed to investigate the antihyperglycaemic and protective effects of two Hericium erinaceus intracellular polysaccharide (HIPS) purified fractions (HIPS1 and HIPS2) from mycelia of H. erinaceus SG-02 on pancreas, liver and kidney in streptozotocin (STZ)-induced diabetic mice. The supplementation of HIPS1 and HIPS2 significantly decreased the blood glucose (GLU) levels; suppressed the abnormal elevations of alkaline phosphatase (ALP), alanine aminotransferase (ALT), aspartate aminotransferase (AST), urea nitrogen (BUN) and creatinine (CRE) levels in serum; improved the antioxidant enzymatic (superoxide dismutase (SOD), glutathione peroxidase (GSH-Px) and catalase (CAT)) activities; and attenuated the pathological damage to these organs. The HIPS1 showed superior effects in antihyperglycaemia and organic protection than HIPS2 possible owing to the abundant functional groups (-NH_2, -COOH and S=O) in HIPS1, indicating that H. erinaceus SG-02 could be used as a functional food and natural drug for the prevention of diabetes and its complications.

Conflict of interest statement

The authors declare that they have no competing interests.