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Cyanidin 3-glucoside improves diet-induced metabolic syndrome in rats

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Graphical abstract

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Abstract

Increased consumption of dark-coloured fruits and vegetables may mitigate metabolic syndrome. This study has determined the changes in metabolic parameters, and in cardiovascular and liver structure and function, following chronic administration of either cyanidin 3-glucoside (CG) or Queen Garnet plum juice (QG) containing cyanidin glycosides to rats fed either a corn starch (C) or a high-carbohydrate, high-fat (H) diet. Eight to nine-week-old male Wistar rats were randomly divided into six groups for 16-week feeding with C, C with CG or QG, H or H with CG or QG. C or H were supplemented with CG or QG at a dose of ~8 mg/kg/day cyanidin glycosides from week 8 to 16. H rats developed signs of metabolic syndrome including visceral adiposity, impaired glucose tolerance, hypertension, cardiovascular remodelling, increased collagen depots in left ventricle, non-alcoholic fatty