Abstract

Scope: Dietary soy protein reduces renal disease progression in a number of renal diseases, suggesting that plant compared with animal proteins may be renoprotective. The inclusion of other plant protein sources could enhance compliance of intervention diets, but the effects of other plant protein sources are not known.

Methods and results: Weanling Han:SPRD-*cy* rats with experimental polycystic kidney disease were given hemp-, pea- and soy protein-based diets compared with the standard AIN 93G diet with casein as the protein source. Kidneys from diseased rats given diets which contained soy or hemp protein compared with casein-based diets were less enlarged, had lower fluid content, smaller cyst volumes, less fibrosis, lower chemokine receptor 2 (CCR2) levels and normalized serum creatinine levels. Soy and hemp protein diets also normalized heart size, which was enlarged in diseased compared with normal rats consuming casein. Kidneys from diseased rats given pea protein compared with casein were more enlarged and had higher fluid content and cyst volumes, despite growing better and having lower serum creatinine and renal chemokine receptor 2 levels, and similar levels of renal fibrosis.

Conclusion: Not all plant proteins are equally protective in experimental kidney disease and associated cardiac hypertrophy.

Related Information

Metrics

Details

Keywords

Cardiac hypertrophy
Hemp protein
Kidney disea
Pea protein
Soy protein

Funding Information

Natural Sciences and Enginee Research Council of Canada

Advanced Foods and Materia