Univerzita Karlova v Praze

1. lékařská fakulta

Abstrakt dizertační práce

Možnosti ovlivnění markerů kardiovaskulárního rizika stravou obohacenou amarantovou moukou

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Abstract (EN)

Introduction: Diet suitable for lipid metabolism disorders should not increase the total and LDL cholesterol, and ideally should assist in its lowering. Analysis of literary sources suggest that amaranth can meet these properties.

Aim: The execution of literary investigation of the issue and experimental verification of lipid-lowering effect of amaranth flour in laboratory conditions.

Methods: 50 (Experiment 1) or 40 (Experiment 2) The mice were divided into five (Experiment 1) or four (Experiment 2) groups fed by control mixture (C), high-energy diet (HED), high-energy diet with amaranth (HED+A) and in Experiment 1, by high-energy diet with amaranth flour and simvastatin (HED+A+S) or only with simvastatin (HED+S), and in Experiment 2 a by high-energy diet with squalene (HED+S). Weight gains were measured and TC, LDL and HDL cholesterol determined.

Results: Feeding of HED diets resulted in a statistically significant increase in the TC cholesterol by 81% (Experiment 1) or 125% (Experiment 2), LDL cholesterol of 612% (Experiment 1) or 304% (Experiment 2) and a decrease in HDL cholesterol by 8.4% (Experiment 1) or 58% (Experiment 2). Feeding of HED+A diet resulted in a statistically significant reduction in the TC cholesterol by 37% (Experiment 1) or 33% (Experiment 2), LDL cholesterol by 46% (Experiment 1) or 37% (Experiment 2) and a decrease in HDL cholesterol by 27% (Experiment 1) or an increase of 47% (Experiment 2). Diet HED+A+S in Experiment 1 resulted in a statistically significant reduction in the TC cholesterol by 46%, LDL cholesterol by 53% and HDL cholesterol by 27%. HED+S diet in Experiment 1 showed neither a positive effect on the level of the TC and LDL nor negative on HDL cholesterol. Diet HED+S in Experiment 2 positively influenced only HDL cholesterol by 60%.

Conclusion: The results confirm the ability of amaranth flour to reduce TC and LDL cholesterol. The effect on HDL cholesterol is unclear. Also, it seems that the amaranth presents numerous substances which participate jointly in its final hypolipidemic effect.