

Title: LINGONBERRY (VACCINIUM VITIS-IDAEA L.) SKIN EXTRACT PREVENTS WEIGHT GAIN AND HYPERGLYCEMIA IN HIGH-FAT DIET-INDUCED MODEL OF OBESITY IN MICE

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Abstract

Obesity is an increasing health problem worldwide. It is associated with co-morbidities such as diabetes and cardiovascular diseases, which are preceded by a state called metabolic syndrome. Diets rich in fruits and vegetables have been reported to decrease the risk of metabolic syndrome and type 2 diabetes. Berries with a high polyphenol content, including lingonberry (*Vaccinium vitis-idaea* L.), have also been of interest to possibly prevent obesity-induced metabolic disturbances.

In the present study, we prepared an extract from the by-product of a lingonberry juice production process (press cake/pomace) and investigated its metabolic effects in the high-fat diet-induced model of obesity in mice. The lingonberry skin extract partly prevented weight and epididymal fat gain as well as rise in fasting glucose level in high-fat diet-fed mice. The extract also attenuated high-fat diet-induced glucose intolerance as measured by an intraperitoneal glucose tolerance test (IPGTT). The extract had no effect on the levels of cholesterol, triglyceride or the adipokines adiponectin, leptin, or resistin.

The results extend previous data on the beneficial metabolic effects of lingonberry and encourage the use of side streams from berry processing industry. Further research is needed to explore the mechanisms behind these effects and to develop further health-promoting lingonberry applications.