

Bamboo Shoot Fiber Prevents Obesity by Modulating Gut Microbiota, Scientists Say

According to ancient Chinese medical literature, bamboo shoots can improve health in many ways due to their high content of dietary fiber. Dietary fiber has been shown to prevent obesity induced by high-fat diet through the modulation of gut microbiota; however, quality difference in fiber type is largely unknown.

Researchers from the Xishuangbanna Tropical Botanical Garden (XTBG), Chinese Academy of Sciences investigated in C57BL/6J mice whether high-fat diets with the same amounts of microcrystal cellulose and bamboo shoot fiber differentially affect body weight, glycemic control, lipid metabolism and gut microbiota. They also included diet groups supplemented with wheat or soybean fibers, or with inulin, or with mixes of bamboo shoot fiber and inulin in three ratios. Their aim was to compare the quality difference among several dietary fibers and identify which was the most effective in suppressing high-fat diet induced obesity and obesity related metabolic disorders in mice. They also wanted to assess whether the possible benefits were associated with changes in the gut microbiota.

The scientists first compared the effect of fiber type on prevention of high-fat diet induced obesity and found that bamboo shoot fiber was more effective in suppressing body weight gain than other fibers. At the end of a 6-week feeding, bamboo shoot fiber not only decreased body weight gain but also decreased fat mass. They also found that bamboo shoot fiber improved glycemic control and dyslipidemia in high-fat diet fed mice.

They sequenced 16S ribosomal RNA gene from variable regions V3–V4 of the cecal samples from low fat



diet (LF), cellulose (HFC) and bamboo shoot fiber (HFBS) diet groups. The results showed that bamboo shoot fiber modulated the gut microbiota.

The study has shown the qualitative difference among different types of dietary fibers in their abilities to suppress high-fat diet induced obesity. It proved that the insoluble fiber from bamboo shoots was the most effective in suppressing high-fat diet induced obesity and accompanied changes in metabolism and the effect was mediated by, at least in part, modulation of the gut microbiota.

Their paper entitled “Bamboo shoot fiber prevents obesity in mice by modulating the gut microbiota” has been published in *Scientific Reports*.