

Rabbiteye Blueberry (*Vaccinium ashei* Reade) Leaf Prevents Metabolic Syndrome

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Both the fruit and leaves of blueberry (*Vaccinium ashei*) have been used as folk medicine for the treatment of lifestyle-related diseases. Rabbiteye blueberry (*Vaccinium ashei* Reade) has recently been cultivated in Miyazaki (southern part of Japan). In this study, we examined the preventative effects of Rabbiteye blueberry leaf on various facets of metabolic syndrome. We also attempted to identify the bioactive chemicals in the leaves of this plant.

Rabbiteye blueberry leaf was freeze-dried, powdered (BL), and used in the present study. The hypotensive effects of BL were examined. Five-week-old spontaneously hypertensive rats (SHR/Izm) were fed diets, prepared according to AIN-76 recommendation, for 3 wk, with or without BL. In the SHR rats fed diets without supplementation of BL, systolic blood pressure (measured using the indirect tail-cuff method) progressively increased during the experimental period, whereas this increase was significantly suppressed in rats fed diets supplemented with BL.

We attempted to examine the hypolipidemic effects and identified the functional components in BL. BL was extracted with hot water (HE), and supernatants were successively separated; namely, Fr 1 (sugar and non-polar constituents), Fr 2 (chlorogenic acid + rutin fraction), Fr 3 (flavonol glycosides), and Fr 4 (proanthocyanidins). Five-week-old male OLETF rats were fed diets with or without HE, Fr 2, Fr 3, or Fr 4, for 4 wk. Diets containing HE and Fr 2, 3, and 4 were all effective in terms of lowering hepatic triglyceride accumulation in OLETF rats. The extent of the lowering activity was highest with supplementations of HE and Fr 4, lowest with Fr 3, and intermediate with Fr 2. In addition, diets containing Fr 3 and Fr 4 significantly lowered serum cholesterol levels in these animals. We further characterized the chemical constituents of the HE, and found that the most abundant polyphenols (11.3% in freeze-dried leaves) were polymeric proanthocyanidins. These results suggest that BL may be a useful functional food to alleviate the incidence and/or progression of certain facets of metabolic syndrome, such as hypertension and lipid disorders. It was also revealed that the major bioactive chemicals in these leaves are flavonol glycosides and proanthocyanidins.