Kohji Murata, MD, Kazuhisa Yatsuhami, PhD, Eiichi Fukuda, Satoshi Onodera, PhD, Osamu Mizukami, MD, PhD, Gen Hoshino, MD, Tsutomu Kamei, MD, PhD

Mulberry leaf (Morus alba L.), a traditional Chinese herb, has been used to treat diabetes mellitus and to alleviate thirst.1 From mulberry leaf extract, 6 N-containing sugars, such as N-methyl-1-deoxynojirimycin, 2-O-α-D-galactopyranosyl-DNJ, and fagomine, have recently been identified and may have antihyperglycemic effects.2,3 Bees make propolis by collecting balsam or nectar from various trees and plants. They then mix this with saliva and various active flavonols such as quercetin,4 which also has demonstrated antihyperglycemic effects.5 Hot water extract from mulberry leaves was mixed with an ethanol extract from propolis named Quapolis.

We investigated the effects of propolis mixed with mulberry leaf extract on type 2 diabetic patients. All patients had blood-glucose control problems for which conventional treatments such as sulfonylureas and/or α-glucosidase inhibitors were ineffective.

Twelve type 2 diabetic patients (8 men and 4 women with ages ranging from 44 to 74 years), whose blood glucose control did not improve when conventional treatments such as sulfonylureas and/or α-glucosidase inhibitors were added to their diet therapy, were given Quapolis 3 times a day for 30 days. Blood samples were taken before and after the test period. Each patient was given 0.7 ml of Quapolis per meal, which is approximately 0.705 mg of acarbose per day (the estimate of which, is based on the known 50% of inhibitory functions of α-glucosidase). There were no further restrictions except the previously indicated diet therapy and drug treatments, and there were no further changes in their preindicated treatments.

Fasting blood sugar (FBS) and glycosylated hemoglobin (HbA1c) were examined as parameters of this study, and all 12 subjects took the indicated amount of Quapolis. Compared with the baseline level, FBS decreased significantly from 202.8±64.0 mg/dl to 129.2±40.5 mg/dl (P = 0.0019, Figure 1). HbA1c also decreased significantly from 7.8±1.2% to 7.0±1.0% (P = 0.0063, Figure 2) at 30 days. During the test period, no patient experienced a greater number of hypoglycemic episodes or any episodes related to gastrointestinal side effects. Significant differences between the mean values of the data before and after the test period were statistically analyzed by t tests (P<.05).

A report from the United Kingdom Prospective Diabetes

FIGURE 1 Changes in fasting blood sugar (FBS) before and after the test period.
Study (UKPDS), the largest study to date on type 2 diabetes patients, demonstrated that the risk of micro- and macrovascular complications can be reduced by intensive therapy using oral antihyperglycemic agents and/or insulin. The UKPDS documented a reduction in vascular complications directly related to reductions in HbA1c levels with a 1% reduction of HbA1c associated with an average 21% reduction in all complications.

Quapolis shows an average reduction in FBS of 73 mg/dl and in HbA1c of 0.8%. The effectiveness of Quapolis as an antihyperglycemic agent, therefore, will be close to that of acarbose, when compared for HbA1c. Based on the results from the UKPDS, the approximately 1% reduction of HbA1c by Quapolis suggests that Quapolis would be effective in the reduction and prevention of the risk of micro- and macrovascular complications, without increasing the frequency of hypoglycemic episodes.

References