28th European Diabetes Congress

July 17-18, 2019 | Edinburgh, Scotland

Effect of bee honey on blood glucose level of sudanese patients with type 2 diabetes mellitus

Samia Mahdi Ahmed
Taibah University, Saudi Arabia

This study was held to determine the effect of bee honey on blood glucose level of Sudaneses type 2 diabetic patients (non- insulin dependent) who were newly discovered. In this study, specific doses of honey or a mixture of sugars that represents the main sugars in honey (fructose, glucose, sucrose) in the same proportions as that found in the honey sample were used. Glucose doses were also given to diabetic patients and the effects on blood glucose levels were compared with honey and sugars mixtures. Forty one diabetic patients and 10 healthy non diabetic volunteers agreed to take part in the study. Blood samples were taken from all subjects before doses of sugars were given to determine the level of glycated hemoglobin (Hb A1c) and fasting blood glucose levels. Subjects were involved in 3 tests; in the first test, 29 patients were given 108g of honey (containing 75g of sugars) after taking fasting blood samples. Further blood samples were taken after 60, 120, and180 min. to determine the blood glucose levels. A week later, the same test was repeated with an equivalent dose, i.e a total of 75g, of sugars mixtures (fructose 41g, glucose 30.8g, sucrose 3.2g) instead of honey and blood glucose levels were determined at the time intervals mentioned above.The same test using honey (36g, which contained 25g sugars) or 25g of sugars mixture (containing 13.7g fructose, 10.3g glucose, and 1.1g sucrose) were repeated on 21 diabetic patients and 10 healthy volunteers enrolled as control. Comparison of the results of the above tests showed that, honey and sugars mixtures at high doses (75g) gave comparable or similar levels of glucose in the blood. After 2 and 3 hours, blood glucose dropped slightly but still higher than the fasting level.

However, giving honey and sugars mixture at low doses (25g) did not cause significant rise in blood glucose after 1 hour, and the blood glucose level dropped below the fasting level after 3 hours. Glucose doses were given as 50g or 25g to diabetic patients and to the healthy non-diabetic controls and the blood glucose levels were determined as mentioned above. The comparison of the blood glucose levels, after giving honey (equivalent to 75g sugars), sugars mixture (75g), or glucose (50g) showed that the glucose resulted in sharp peak after 1 hour which remained high 2 hours later as compared to honey and sugars mixtures. When comparing the effects of low doses of honey (equivalent to 25g sugars), sugars mixture (25g), and glucose (25g); it was found that both honey and sugars mixtures did not raise the blood glucose level significantly, up to 3 hours; whereas the dose of glucose alone gave sharp rise after 1 hour and remained relatively higher than the levels obtained by honey and the sugars mixtures. Thus, from this study, it can be concluded that, low doses of pure honey, approximately 3 table spoons can be recommended as a sweetener for diabetic patients in addition to its high nutritional value instead of using the so-called diabetic food which offers no metabolic advantage over moderate amounts of sugars containing counterparts and which often have side effects. Honey sample was analyzed to test its quality using gas-liquid chromatography. Contents of honey showed its genuineness as shown in the tables below.

SUGAR	RATIO (%)
Fructose	38.0
Glucose	28.5
Sucrose	3.0
Fructose / Glucose	133 / 100

PARAMETER	RESULT
pH	4.64
Free acidity	63.2meq. Acid/kg
Total acidity	69.4meq. Acid/kg
Hydroxymethylfurfural (HMF)	Negative
Moisture content	19.8%

Biography

Samia Mahdi Ahmed is an Assistant Professor at Taibah University, Saudi Arabia. She completed her BSc in Medical Laboratories October 1997, MSc in Clinical Biochemistry, October 2000 and Ph D. in Clinical Biochemistry in May 2007, from Sudan University of Science and Technology. She has done her PhD thesis in Cytogenetic and Molecular Studies of Sudanese Patients with Disorders of Sexual Development.

samiamahdiahmed@yahoo.com

Notes: