

MOMORDICA CHARANTIA INHIBITS CARBOHYDRATE DIGESTION AND ABSORPTION IN THE GI TRACT

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Momordica charantia fruits has been widely used as a traditional drug throughout Asia. The goal of the present study is to explore the mechanism of its anti-hyperglycemic activity related to the inhibition of carbohydrate digestion and absorption in the gut. The dried-powder-fruits of *M. charantia* were extracted with methanol. Sucrose malabsorption was assessed in 20 h-fasted rats by determining the portion of sucrose remaining in six different parts of gastrointestinal tract after sucrose administration (2.5 g/kg b.w). Inhibition of glucose absorption in the gut was evaluated by utilizing the in situ perfusion of small intestine. For investigation of disaccharides activity, the extract was orally administered orally to 20 h-fasted rats. The small intestines of the sacrificed rats were isolated and homogenized after 60 min. At 37 °C, 40 mmol sucrose mixed homogenate (I) was incubated for 60 min. Disaccharides activity was determined by glucose generated as a result of sucrose digestion as mol-mg glucose/protein/h. After administration of *M. charantia* extract with the sucrose load was shown that the residual sucrose quantity was increased significantly ($p < 0.01$) in the gastrointestinal tract, particularly in the upper intestine after 30 min, in the whole intestine and cecum after 60 min and 120 min. At 240 min sucrose was not traceable in the gut. During 30 min of perfusion the intestinal glucose absorption with glucose was almost constant. When *M. charantia* extract was administered with the glucose solution, the glucose absorption percentage was decreased during whole perfusion period ($p < 0.05$). Disaccharidase (sucrose) activity was significantly ($p < 0.01$) decreased in extract treated rats. In conclusion, the anti-hyperglycemic action of *M. charantia* fruit-fed-rats are mediated partly via: delayed intestinal carbohydrate digestion and absorption.

BIOGRAPHY

Mahbub Hasan has recently completed masters of pharmacy, on clinical pharmacy and molecular pharmacology from East West University and also completed bachelor of pharmacy from Stamford University, Bangladesh. His research work was done on active supervision of JMA Hannan. He has published review scientific articles in reputed journals on "Nanotechnology drug delivery system: Tools in advances pharmaceutical & healthcare and contemporary investigation on nasal spray drug delivery system". Also has an international Conference Paper on "Gastro retentive: A novel drug delivery system" on 4-5 February 2017 Dhaka, Bangladesh.

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