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ANTI-HYPERGLYCEMIC ACTIONS OF *NIGELLA SATIVA* MEDIATED BY INHIBITION OF CARBOHYDRATE DIGESTION AND ABSORPTION IN THE GUT

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Previously *Nigella sativa* seeds have been documented as a traditional herbal treatment for diabetes. Anti-hyperglycemic activity of its seed extract, in the postprandial state, indicates that the extract may interfere with the glucose absorption in the gut. The present study aims to explore the mechanism of its anti-hyperglycemic activity related to the inhibition of carbohydrate digestion and absorption in the gut. The dried powdered seeds of *N sativa* were extracted with methanol. Rats were fasted for 20 h prior to the experiment. Sucrose (2.5g/Kg/5ml), average 443mg) with or without extract (0.5 g/kg) was administered orally. Following administration rats were sacrificed after 30 min,60 min, 120 min respectively. Sucrose malabsorption was evaluated in the rats by measuring the amount of sucrose remaining in six different parts of gastrointestinal tract. With ice- cold saline (10 ml) each segment was washed out, for acidifying H_2SO_4 (2 ml) was added and centrifuged at 3000 rpm for 10 min. To hydrolyze the sucrose the supernatant thus obtained was boiled for 2 hours and then neutralized with NaOH (approximately 2.5 ml). Glucose Oxidase (GOD-PAP) method was used to measure the amount of glucose liberated from residual sucrose in the gastrointestinal tract. From the amount of liberated glucose the sucrose content in the gastrointestinal tract was calculated. When extract of *N sativa* was administered simultaneously with the sucrose load, the residual sucrose content in the GI Tract was increased significantly ($p<0.01$) and ($p<0.05$ respectively) in the stomach at 30min and 1h, especially in the upper intestine at 1h, in the middle intestine at 1h, in the lower intestine at 30min and 2h ($p<0.01$), in small intestine, large intestine and cecum at 30min and 1hr. The anti-hyperglycemic activities of *N sativa* in *Long Evans rat* are related to retardation of intestinal carbohydrate digestion and absorption in the gut.

BIOGRAPHY

Afra Haque completed her bachelor of pharmacy from East West University (EWU), Dhaka, Bangladesh. During her bachelors program she has done her thesis project on Pharmacology on the topic "Anti-hyperglycemic activity of *Nigella sativa* plant seed on *Long Evans rat*" under the supervision of JMA Hannan. She has been awarded dean's list scholarship and full free scholarship during her bachelors program.

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