

HYPOGLYCEMIC EFFECTS OF SPIRULINA (*Spirulina platensis*) LEAVES IN NORMAL AND ALLOXAN DIABETIC RAT

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Executive Summary

Diabetes is one of the major degenerative diseases in the world today and one of the five leading causes of death in the world. Diabetes mellitus (DM) is characterized by elevated plasma glucose concentrations resulting from insufficient insulin, insulin resistance or both leading to metabolic abnormalities in carbohydrates, lipids and proteins. Although, oral hypoglycemic agents and insulin are the main treatment of diabetes with prominent side effects and fail to significantly alter the course of diabetic complications. Complementary and alternative medicine involves the use of medicinal plant alternatives to mainstream treatment. According to the World Health Organization, a great number of medicinal plants used in the control of the DM have been reported. Spirulina contains a wide spectrum of nutrients that include B-complex vitamins, minerals, trace elements, good quality proteins, gamma-linolenic acid and the super antioxidants, beta carotene, vitamin E, phycocyanine and chlorophyll. The aim of this research was to elucidate the possible antidiabetic activity of *Spirulina platensis* and its medicinal potency responsible for the hypoglycemic activity. This research work was conducted in the Laboratory of Anatomy, Histology and Physiology, Sher-e-Bangla Agricultural University; Dhaka. In this study 150 rats were included and divided into three groups of ten rats in each group. First group was normal control (A), Second group was diabetic control (B), third group was diabetic with Spirulina treated (C). The rats were treated with aqueous extract of Spirulina at a dose rate of 20 mg/kg body weight, respectively for 3 weeks. During experimental period, day 0, day 7, day 14 and day 21 blood samples were collected from all groups and determined their blood sugar level using diabetic kit. Hypoglycemic effects were observed with Spirulina (*Spirulina platensis*) when given as leaf extract in normal and alloxan diabetic rat. The blood glucose levels were reduced from 165.5 ± 10.65 mg/dL to 158.17 ± 5.49 mg/dL in group C after 3 weeks treatment. On the other hand, the average body weight was increased from 255.67 ± 7.35 g to 286.17 ± 8.56 g in group C after 3 weeks treatment. From the findings it is concluded that the Spirulina can be used as anti-diabetogenic agent in food.

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