Nigella sativa oil for the management of hyperglycemia and dyslipidemia

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INTRODUCTION

We report the preliminary results of an investigational trial regarding the effect of neutral lipids of Nigella sativa seed on hyperglycemia and blood lipid status in Nicotinamide/Streptozotocin (N/STZ)-induced diabetic rats.

MATERIAL & METHOD

Extraction of Nigella sativa oil was carried out using methanol/chloroform extraction.

Neutral lipids were obtained by fractionation on silica gel column. Both total oil and neutral lipid fractions were assessed by gas chromatography (GC) for their contents on fatty acids, phytosterols and phytostanols.

Triglycerides contents were determined using high performance liquid chromatography (HPLC) coupled to an evaporative light scattering detector.

After N/STZ induction of diabetes in Wistar rats, fractions were administered orally (100mg/kg/daily) for 21 days, then blood levels of glucose and lipids levels were assessed.

RESULTS

In diabetic rats group treated with either total oil extract or neutral fraction, blood glucose decreased significantly from 123 mg/dL to 83 mg/dL respectively after only 7 days.

Afterwards, blood glucose was stabilized to normal levels in both treated animal group from 15th to 21st day of experiment.

A significant decrease in triglyceride was observed within only one week of treatment with both fractions.

In contrast, treatment with both total oil and neutral lipids fractions lead to an increase in high density lipoprotein (HDL) cholesterol levels to 1.19 ± 0.08 g/L and 0.78 ± 0.08g/L respectively at the 7th day with no change in body weight of animals during our experimentation.

CONCLUSION

Neutral fraction is rich in various bioactive lipids. Such neutral lipids play an important role in stabilising blood lipids and reduce significantly hyperglycaemia in diabetic rats.

These findings would suggest them for the treatment of diabetes and dyslipidemia.

Further investigations in both murine and human trials are strongly recommended.