

ABSTRACT

Non insulin dependant diabetes mellitus or Type 2 diabetes, the predominant variety of diabetes accounting for about eighty percent of the disease, with its potential to develop complications and irreversible changes culminating into diabetic coma or death has already assumed alarming situation in India. It is projected to affect about thirty percent of the population by the year 2025. To cope with this figure is well neigh beyond the scope of health care agencies, existing and to come up in the course of time, in the country. The main cause of proliferation of the disease in such a menacing rate appears to be mindless change over of food habits, aping the western nations considering this to be an indicator of advancement, along with less and less physical labour, consequent upon more and more mechnisation in the industrial and agricultural sectors, resulting in a sedentary life style.

Neutraceuticals, a global idea – Japan and Germany being the forerunners – can possibly provide an answer to the problem. Partial elimination of saturated fat intake, and thus reverting back to proper ω -3/ ω -6 ratio, inclusion of dietary fibres – both soluble and insoluble types, providing high quality protein from vegetable sources are some of the modifications that are thought proper to remove the inadequacies in the present day dietary pattern in the Indian village population where protein energy malnutrition is a common order. While designing a proper dietary formulation one has to keep in mind the diverse social, economical, religious practices of the people and, obviously, availability and acceptability of the items, and affordability of the subjects are important factors.

In the present study the neutraceuticals considered, for short term studies, include flax as raw ground flax seed (50g per day), flax oil (15 – 30 ml/day), flax cake 100g mixed with 300g sunflower cake per day), flax gum (25 – 30g/day) and flax oil with higher zinc content (15 ml/day), fish oil (3 capsules of maxepa/day), soy bean (10g mixed

with 40g sorghum per day), fenugreek (25 – 100g per day), rice containing higher retrograded starch (100 g/day) and melatonin (9mg/day). For long term studies various combinations of nutraceuticals including, in addition to most of the above ones, sesame, sunflower, coconut oils as cooking medium and psyllium husk as a common source of insoluble fibre.

All these nutraceuticals, most being common items of food, are found to be effective in controlling the diabetic conditions along with dyslipidaemia. Results observed show reductions in fasting blood sugar, total cholesterol, low density lipoprotein cholesterol, very low density lipoprotein cholesterol, and triglycerides along with some increase in high density lipoprotein cholesterol. The extents of changes, however, are different for different items used singly or in combination. The combination of flax oil, sesame oil and fenugreek has been found to be the most effective considering all aspects. Changing over to either mustard or coconut oil, common cooking medium in India, for traditional flax oil consumers was found to deteriorate their diabetic conditions. Melatonin is also found to be effective in diabetics, probably, through its role in hypothalamic-pituitary axis and its receptors in pancreas.

