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INTERVIEW

'GM crop is essential for India'

- Prakash Javadekar, Minister of State (Independent Charge), Environment, Forest & Climate Change, government of India

MOVING TOWARDS GM OILS

Nutraceuticals and chronic diseases

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Nutraceuticals play a very important role in prevention and treatment of high blood sugar level. The most common form of diabetes is type 2 diabetes with 95% prevalence and is associated with obesity. Although various drugs for prevention and treatment of diabetes have been introduced, however, globally the total number of people with diabetes with various causes is increasing. Insulin is associated with lots of complications. Diabetes, not only imposes considerable economic burdens on individual patients and their families but also places substantial economic burdens on society. Isoflavones, are phytoestrogens which have structural/functional similarities to human estrogen. Soy isoflavones have been studied most and their consumption have been associated with lower incidence and mortality rate of diabetes, heart disease, osteoporosis and certain cancers. Lipoic acid is an antioxidant which is used for the treatment of pinching nerves which is the most common complication of diabetes.

Worldwide, the prevalence of hypertension and the researches in this area is increasing. If it is not controlled, it will turn in to heart failure. Many studies have reported a protective role for a diet rich in vegetables and fruits against heart attack. Nutraceuticals in the form of vitamins, minerals, antioxidants, dietary fibres and omega 3 polyunsaturated fatty acids (n–3 PUFAs) together with physical exercise are recommended for prevention and treatment of hypertension associated death. Flavonoid intake was significantly inversely associated with mortality from incidence of hypertension associated deaths. Fatty acids of the omega 3 series (n–3 fatty acids) present in fish are dietary components affecting high cholesterol level.

Alzheimer's disease (AD) is the most common form of memory loss disorder. There is no cure for the disease and eventually leads to death. Most often, AD is diagnosed in people over 65 years of age. Several lines of evidence suggest that oxidative stress might be related to a number of neurodegenerative disorders including AD. Nutraceutical antioxidants such as curcumin, lutein, lycopene, turmerin and βcarotene may exert positive effects on specific diseases by combating oxidative stress. The growing trends in nutraceutical usage are due to the belief that these compounds are able to postpone the development of dementias such as AD.

Osteoarthritis is another age related chronic disorder commonly seen after 50 years. Nutraceuticals whose influence on osteoarthritis has been tested are ginger, soybean, glucosamine, chondroitin. They are proven very safe and well tolerated in treatment and prevention of arthritis. Vitamins C and D are micronutrients for which evidence of benefit exists.

Obesity is, nowadays, a global public health problem with about 315 million people involved. Obesity is a risk factor for many disorders such as hypertension, high cholesterol level, osteoarthritis, cancer etc. One of the primary causes of obesity is the increased availability of high fat, energy dense foods. There is very high prevalence of obesity globally and hence nutrition and exercise play a key role in its prevention and treatment. Nutraceutical interventions are currently being investigated on a large scale basis as potential treatments for obesity and weight management. Herbal stimulants, such as caffeine and green tea are effective in facilitating body weight loss.

Recent studies have shown promising results for these compounds in various complications. In the present review much effort has been devoted to provide their diseases modifying indications related to oxidative stress including Alzheimer, cardiovascular, cancer, diabetes diseases as well as obesity. NS