

Nutritionals Nutraceuticals Functional Foods Dietary Supplements

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DIGITIZATION FOR MAKING CLAIMS & LABELLING EASY



**When would
discoveries from
Ayurveda earn a Nobel?**



**Future of project management
professionals looks promising**

- Raj Kalady, Managing Director, PMI India



Dr Sanjay Agrawal

Leading Pharmaceutical Consultants & Inventor

Nutraceuticals and Life

In the present world due to lack of time and easy availability of economically cheap junk food, people are more inclined towards fast food, which has little or no nutritional value or products which have nutritional value but have ingredients which are unhealthy. This trend though saves time leads to many disorders. Stress also plays a main role, which mainly generates free oxygen radicals which impose a risk of many disorders. These disorders are known as lifestyle stress related disorders. According to WHO report, India is one of many nations with most cases of lifestyle disorders. Lifestyle diseases or disorders doesn't kill the person instantly but leads to progressive increase in disease and hence increase in number of death and many critical health conditions.

There is no doubt that there are many ways to improve lifestyle related disease. These include medicine and diet control. But balanced diet supplemented with important nutrients and exercise are better as they have no or minimal side effects. So it can be easily proposed that micronutrient is the answer to our daily dietary requirement and Nutraceuticals is our bet for coming out of our nutrition related misery.

Junk food is a big part of our daily diet. These, so called junk food are saturated with excess of salts, fats and un-

wanted carbohydrates. And what they are lacking is essential micro nutrients including vitamins, essential amino acid and some important traces of minerals. So it is important to fill the gap with nutraceutical supplements. Nutraceutical may range from isolated nutrients or dietary supplement or herbal products or to any form of processed food. Latest addition to nutraceuticals is of 'Designer Food'.

There is also a steep increase in non-communicable disease due to excess intake of junk food, consumption of alcohol and smoking habits. These include: cardiovascular disease,



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cancer, diabetes, obese disorder, immunity related disorders, inflammatory disorders and many forms of degenerative disorders.

Many nutraceutical products have been helpful in reducing or limiting above mentioned disorders. This is due the fact that these products contain many essential micronutrients, fibres and important functional components. There are different types of nutraceutical products available in market which target specific type of disorder, apart from general supplements. These products contain broad functional components that include both water soluble (sterols, tocopherols, gamma oryzanol, peptides etc.) and fat soluble. Due to presence of anti-oxidants (EPA, DHA, CoQ10 etc.), they are very effective against lipid oxidation. Our generation is facing a lot of degenerative disorders mainly caused by Thio-barbituric acid-reactive substance (TBARS) and lipid peroxide. These are mainly found in tobacco, alcohol and such type of junk food and their best remedy is to take stable anti-oxidant.

With advancement of science lots of new compound with potential health benefits are coming up. And there are many compounds that are well characterised in nutraceutical industry due to their potential health benefits and scientific backing with them. These include PUFA (Poly unsaturat-

ed fatty acid), MUFA (Mono unsaturated fatty acid) and many phytochemicals. PUFA are known for their immunity boosting advantages and phytochemicals are very effective in reduction of cancer and inflammations. Many studies have shown that micronutrient (anthocyanin, flavones, isoflavones, proanthocyanins etc.) in nutraceutical supplement for fat reduction are quite effective in reduction of LDL (Low Density Lipoprotein) generally known as bad fat and increase in HDL (High Density Lipoprotein), also known as good fat.

There is a great deal of connection between consumption of nutraceutical and reduction of many lifestyle related disorder. Moreover nutraceutical products come handy in various pharmaceutical companies containing food bioactive compounds. They are available in pills, powders, capsules, vials and in gummies etc.

Following is the role of nutraceuticals in ailment/reduction of various lifestyle disorders:

- A) **Obesity:** This may lead to many disorder including hypertension, cancer, congestive heart failure, respiratory disorder, osteo-arthritis, reduced fertility etc. As there is increased consumption of high fat, energy dense food, so is the increase in number of obesity cases. Nutrition and exercise play important role in limiting the high prevalence of obesity, globally. Nutraceuticals supplement with active intergradient like conjugated linoleic acid (CLA), herbal stimulant (caffeine, chitosan etc.), may acts as anti-obesity supplement.
- B) **Cardiovascular Disease (CVD):** Free radicals cause damaged blood vessels and developed clot in it. In year 1999 alone, CVD contributed to third of global death and there is a steady increase in numbers. Nutraceutical is one of the emerging solutions as many

nutraceutical products are rich in antioxidants, dietary fibres, Omega 3 - unsaturated fatty acid, vitamins and essential minerals. These nutrients act in reduction of CVD related problems if taken along with regular exercise.

- C) **Diabetes:** Diabetes Type 2 is associated with obesity and accounts almost 90% of the diabetics' cases. The main reason for diabetes is lack of exercise and starch based diet. Various studies have suggested that Omega 3 fatty acid in specific nutraceutical supplements have reduced glucose tolerance in patients predisposed to diabetes. Ethyl esters of various fatty acids may have potential beneficial effects in diabetic patients. Also recommended level of Magnesium if supplemented with proper dosage of calcium and Vitamin D will improve Glycemic Control in some diabetes.
- D) **Cancer:** In the year 2000, malignant tumors were responsible for 12% death worldwide from all causes and the number is on rise. 50% of cancer has emerged from the chemicals and are a great threat to public health. A healthy lifestyle and balanced diet can help in preventing the cancer. New studies have shown promising results with Phytochemicals which have anti-cancer activity. There is a manifold increase in the cases of Colon cancer in past few years. This is mainly due to dietary habits and to tackle that there are many drugs in the market. But all of these have some severe side effects. So nutraceuticals (specific) supplements are again the winner as they contain many flavonoids, saponins and anti-oxidants (lycopene, beta-carotene) that have anti-cancer activity without side effect.
- E) **Arthritis:** Friction between joints emerges free radicals and which

causes redness, pain and swelling at local site. Arthritis is also a form of inflammations in joints. Nutraceutical products specifically designed to reduce inflammatory disorders contains Omega 3 and Omega 6 unsaturated fatty acids as they play significant role in reducing inflammation and allergic disorder via generation of potent modulator molecule (cytokinins) for inflammation. This supplement contains many antioxidants (glucosamine, chondroitin, alkaloids, s-adenosylmethionine, tannins etc.) that are effective in reducing inflammations.

Apart from these disorders, nutraceuticals intergradients are very effective in decreasing or checking the progression of various other disorders. These include various forms of allergy, osteoarthritis and many neurodegenerative disorders including Parkinson's and Alzheimer's disease. This is all due to supplemented micro and macro nutrients that are otherwise skipped in our regular diet. Moreover a new approach of nutraceuticals supplements is to be used as 'Orphan Drugs'. The term 'Orphan Drugs' refers to drugs that treat rare disease and conditions. There are more than 5,000 Orphan Disease, worldwide. While current biotech and pharma-based drugs hold the market but many nutraceuticals products have shown promising results.

It is not easy to take balanced diet as time and availability are the limits in current lifestyle. But, if proper nutraceutical supplement is taken along with diet and with help of regular exercise, we can keep ourselves fit, alert and active. This is the main reason for more demand of nutraceuticals product. Nutraceutical industry is receiving recognition due to its effectiveness and no side-effect related problems. Due to current trends and encouraging stats it is estimated that this is going to be the key industry very soon. **NS**