**Phytochemicals**

Phytochemicalsare plant-derived chemicals found in fruits, vegetables, legumes, and whole grains.They are not considered essential nutrients in the diet. Still, many of these substances provide significant health benefits. For instance, numerous studies show reduced cancer risk among people who regularly consume fruits and vegetables. Phytochemicals help in providing protection against cardiovascular disease. Some phytochemicals also have been linked to a reduced risk of cardiovascular disease and other age-related diseases. Current multivitamin and mineral supplements contain few or none of these beneficial chemicals. Thus, nutrition and health experts suggest that a diet rich in fruits, vegetables, legumes and whole-grain breads and cereals is the most reliable way to obtain the potential benefits of phytochemicals.

**Types of phytochemicals**

Alkaloids

Saponins

Tannins

Phlobatannins

Glycosides

Phenols

Anthraquinones

Cardenolides

Steroids

Terpenes

Flavonoids

Chalcones

1. Flavonoids are polyphenolic compounds comprising fifteen carbons with two aromatic rings connected by a three-carbon bridge, hence C6-C3-C6. They are the most numerous of phenolics and are found throughout the plant kingdom. They are present in high concentrations in the epidermis of leaves and fruits and have important and varied roles as secondary metabolites, being involved in processes like UV protection, pigmentation, stimulation of nitrogen-fixing nodules and disease resistance. Flavonols are the most widespread of the flavonoids. They are protectively active against liver toxins and tumours.
2. Tannins are predominant phenolic compound in legumes. Tannins are found mainly in the testa and play an important role in the defense system of seeds that are exposed to oxidative damage by many environmental forces
3. Saponins: Saponins are naturally occurring compounds that are widely distributed in all cells of legume plants. Saponins, which derive their name from their ability to form stable, soaplike foams in aqueous solutions, constitute a complex and chemically diverse group of compounds. In chemical terms, saponins contain a carbohydrate moiety attached to a triterpenoid or steroids. Saponins are attracting considerable interest as a result of their diverse properties. Clinical studies have suggested that these health-promoting components, saponins, affect the immune system in ways that help to protect the human body against cancers, and also lower cholesterol levels. Saponins decrease blood lipids, lower cancer risks, and lower blood glucose response. A high saponin diet can be used in the inhibition of dental caries and platelet aggregation and as an antidote against acute lead poisoning. In epidemiological studies, saponins have been shown to have an inverse relationship with the incidence of renal stones.
4. Phenolic compounds: Phenolic compounds contribute to the overall antioxidant activities of the plant foods due to their redox reactions. They suppress the generation of free radicals, thus reducing the rate of oxidation by inhibiting the formation of or deactivating the active species and precursors of free radicals.
5. Phytic acid, a cyclic compound (1,2,3,4,5,6-hexakis dihydrogen phosphate myoinositol) is a common storage form of phosphorus in seeds Phytic acid has recently been suggested to have a protective role in carcinogenesis.