

Plant & Animal Source Based Functional Foods

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Plant Derived Functional Foods

Plant based functional foods are separated into:

Primary metabolites: These include plant proteins, β -glucans and omega-3 fatty acids.

Secondary metabolites: These include phytoestrogens, antioxidants, vitamins, tocopherols, steroids, gamma-linolenic acid (GLA), and phase II enzyme inducers (found in Brassica vegetables, acts as functional foods by glycosylating insoluble toxins to produce soluble compounds that are excreted).

Animal- Derived Functional Foods

Animal derived functional foods are:

Zoochemicals: Animal- derived functional foods, include omega-3 & 6 fatty acids, conjugated linolenic acid(CLA), small peptides, whey & casein and glucosamine.

ω -3 fatty acids includes alpha linolenic, DHA & EPA fatty acids.

Microbial Functional Foods

Microbial-derived functional foods includes:

Probiotics are living micro organisms administered in sufficient number to survive in the intestinal ecosystem. eg. *L. casei* or *Bifidobacter* species, which promote health

Prebiotics are dietary components that promote growth of probiotic bacteria.

Synbiotics contain specific probiotics and prebiotics mixed together to benefit one another.

Miscellaneous Functional Foods

Some functional foods are derived from Miscellaneous compounds are:

Algae function by providing omega-3 fatty acids, which enhance immunity, modulate inflammation & protect against neurodegenerative diseases.

Mushrooms: Functional foods derived from mushrooms contain antiviral, antibacterial and anti-inflammatory properties.

Genetic Engineering & Functional Foods

Genetic engineering of crops through gene transfer offers great potential for developing health-enhancing properties in foods.

These enhancements has included improving fatty acid profiles in oil seed crops, modification of protein quality of potato and anti oxidant content in different crops.

Examples of genetically modified crops with health promoting properties:

Substance	Benefit	Crop	Transgene
Provitamin A	Anti-oxidant vitamin A supplement	Rice	Phytoene synthase (Daffodil); phytoene desaturase (Erwinia)
Flavonoids	Anti oxidant	Tomato	Chalcone isomerase (Petunia)
Iron	Iron supplement	Rice	Ferritin (Phaseolus); Phytase (mutant, Aspergillus)