

Spirulina : The biotech super-food

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The Human population is increasing at an alarming rate day by day. There is a need for another Green revolution to fulfill the food needs of this population. In such a case Biotechnology can offer a solution by recommending alternative food sources such as spirulina. Water crisis is also one of the major problems the world is facing today. Large populations of people in many countries do not have an access to pure drinking water sources. The concept of using recycled water by treating the used water *i.e.* sewage can be developed only by means of its purification using biotechnological means.

“Let your food be your medicine and your medicine your food” (Hippocrates, 460-c. 370 BC)

This saying is really suitable for spirulina which being a complete food also has many medicinal and therapeutic uses. Apart from its uses in food and medicine, spirulina can also be incorporated in treatment of wastewater due to its property to accumulate ions of heavy metals such as Mercury, Lead, Arsenic, cadmium etc. and such reclaimed water can be used for various uses.

Introduction and history:

Spirulina is a blue green algae found in most lakes and ponds. Spirulina occurs naturally in tropical and subtropical lakes with high pH and high concentrations of carbonate and bicarbonate. It has been consumed for thousands of years by Mexican (Aztecs, Mayans), African

and Asian people. The name “spirulina” is derived from the Latin word for “helix” or “spiral”; denoting the physical configuration of the organism when it forms swirling, microscopic strands. Spirulina are free-floating filamentous cyanobacteria characterized by cylindrical, multicellular trichomes in an open left-hand helix.

Nutritional benefits:

– 100 times more Vitamin A than carrots! Spirulina is the world’s richest natural source of Beta-Carotene (Pro Vitamin A), which helps to improve eye sight.

– 6 times more protein than eggs! Spirulina has very high natural protein content (upto 70%). This protein is a called complete since it has 18 of the 22 amino acids that the body needs and being organic in form, has very high digestibility (upto 97%). This ensures proper utilization and assimilation of the food a person eats.

– 50 times more Iron than Spinach! Spirulina’s rich content of natural Iron and folic acid helps not only to greatly improve haemoglobin levels in the blood, but being organic, is 60 times more absorbable than synthetic iron present in most of the haematinics.

– 7 times more Calcium than milk! Spirulina is one of the World’s richest known sources of natural Calcium which helps build strong bones.

– 10 times more Potassium than vegetables! Its Potassium content (upto 10 times more than common

