



## Spirulina Powder

### What is Spirulina?

Spirulina is a microscopic blue-green algae, thought to have evolved about 3.5 billions years ago,<sup>1</sup> and is so named because of its spiral shape.<sup>2,3</sup> It has been consumed for hundreds of years; its use was first recorded in 1521 by Bernal Diaz del Castillo, a soldier in Hernan Cortez's army.<sup>4</sup>

Del Castillo discovered the Aztecs collecting Spirulina from Lake Texcoco and using it to form a small cake known as tecuitlatl, which they sold in the markets of what is now Mexico City.<sup>1,5</sup>

The Kanembu people, based to the northeast of Lake Chad, also historically consumed Spirulina. They used the algae to make a cake known as dihé, as recorded in 1940 by Dangeard, a French scientist. Spirulina was 'rediscovered' in Chad during a 1964-65 expedition by a Belgian botanist called Jean Léonard, at which point Spirulina became of more widespread, international interest.<sup>1,2</sup>

Spirulina is a protein rich food and, according to a United Nations Study, its production has far less impact on the environment than many other forms of protein. For example, in comparison to soybeans, Spirulina yields 20 times more protein per unit, uses only 25% of the water and is 5 times more energy efficient. Unsurprisingly, the comparisons with beef are even starker.<sup>1,6</sup>

### Processing

Our Spirulina is organically grown in the Hainan province, to the south of China, in a secluded rural area far from urban pollutants. The long hours of hot sunshine provide ideal conditions for the Spirulina, which thrive in warm, alkaline conditions.<sup>3,4</sup>

The Spirulina is cultivated in raceway ponds filled with pure filtered groundwater. The water is stirred to spread the nutrients and maintain a uniform temperature. After 1 – 2 months of growth, the Spirulina reaches its optical density and can be harvested for the first time. Subsequent harvests take place every 7 – 10 days.<sup>3</sup>



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After the Spirulina is harvested, it is washed then rapidly dried. Although this means it is not a raw product, the Spirulina is only subjected to heat for a few seconds and its capacity to deal with high temperatures means that it retains almost its entire nutritional value. The product is then vacuum packed and sent to Naturya.<sup>3</sup>



### How to enjoy Spirulina

For those people looking for a simple hit of Spirulina, it can be taken mixed into water, although many prefer to stir it into a fruit juice. Spirulina is a great inclusion to a smoothie and, if you're feeling brave, it can even be added to sweet tasting desserts. If you'd prefer something savoury, try mixing it into a dip, salsa or pasta sauce for a welcome protein boost.

### The Science

Naturya Spirulina science information is currently being updated.

1 Habib, M.A.B, Parvin, M., Huntington, T.C. & Hasan, M.R., 2008. A Review on Culture, Production and Use of Spirulina as Food for Humans and Feeds for Domestic Animals and Fish. FOOD AND Agriculture Organization of the United Nations. Rome, 2008.

2 Umesh, B.V., 2010. Spirulina: The most powerful food on Earth. Unicorn Books.

3 Supplier pers. comms.

4 Gershwi, M.E., & Belay, A., 2008. Spirulina in Human Nutrition and Health. CRC Press; Taylor & Francis Group.

5 Vonshak, A., 1997. Spirulina PLatensis (Arthrospira): Physiology, Cell Biology and Biotechnology. Taylor & Francis Ltd.

6 Page, L., 2004. Linda Page's Healthy Healing: A Guide to Self-Healing for Everyotne. 12th ed. Healthy Healing Inc.



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