Farming the blue-greens

Since 1997, *Aurospirul* is producing high quality sun-dried spirulina using sustainable and eco-friendly technologies.

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The second spirulina farm at *Windarra*

It's Wednesday at Solar Kitchen. At lunch a dark green dollop is served in little steel cups. Its distinct smell of the ocean evokes either love at first taste or total recoil. Welcome to the world of spirulina grown in Auroville's Spirulina Farm at *Simplicity*. To learn more, I visit Dutch Aurovilian Hendrik who runs Aurospirul, the unit that produces spirulina.

It's a quarter to ten, close to tea time. Seated under the coconut thatch of *Aurospirul's* long veranda, we see the women rinsing the white muslin cloth that was used for the morning's harvest. Pressed green pâtés of spirulina lay glistening on stone slabs. Soon they will be extruded into long spaghetti-like threads using hand-cranked machines, and then sun-dried on straw mats up on the roof.

"There has always been a relation between spirulina and Auroville," says Hendrik, whose involvement with the blue-green algae happened by chance. "It is the food of the future and we are in the city of the future."

Hendrik came to Auroville in 1996 and found a place in the beach community of *Simplicity*, where Bonaventura Chanson, a Swiss Aurovilian, had been living. "When I arrived, he had just passed away, and that left me all alone in *Simplicity*.

"Bonaventura had started *Simplicity* in 1990 with the idea of setting up a spirulina farm. For six years he tried to realize the vision but it did not materialize. He had an extensive collection of books on spirulina cultivation which I began reading." Slowly Hendrik's interest grew. "Some months later, when I was a Newcomer, I was asked to justify my presence at *Simplicity*. So together with Tejas Joseph, another Aurovilian, I submitted

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Hendrik

a proposal to study the possibilities of setting up a Spirulina farm in *Simplicity*." The Development Group, then in charge of the allocation of land stewardships, consented. "From that moment, the wheels began to turn magically.

"I got a phone call from Antenna Technology in Madurai – I still don't know how they came to know about me – asking if I wanted to be part of a training programme on spirulina farming. Soon the Auroville Health Centre offered an interest-free loan to build our first three tanks, and by 1997, *Aurospirul* had started production.

"Bonaventura's idea got realized and our first production went for a nutrition programme at the Auroville Health Centre."

However neither Bonaventura nor Hendrik were the first to dream of spirulina for Auroville. Hendrik pulls out an old book from the library. It is about spirulina cultivation from around the world. He turns to the chapter on India, where he points to a black and white photo. It is of a water-filled cement pond, with a windmill and palm trees on the horizon. "This is Auroville in the early 1970s," he explains. "Auroville's first experimental spirulina plant was started by Bob Lawlor in the Success community. Later there were other experiments in *Djaima* and *La Ferme*, but these projects never really took off."

But *Aurospirul* did, and continues to grow. Today, at *Simplicity*, the spirulina is cultivated in 15 shallow tanks with a total surface area of 450 square metres with each square metre producing 10 grams of spirulina a day. Last year, *Aurospirul* was allotted land in *Windarra* for a second spirulina plant. "There we have built 24 tanks with a total surface area of 800 square metres. And with that, our production capacity has increased to about 4 tons of dry spirulina a year."

Almost all the workers at *Aurospirul* are illiterate women who come from the surrounding villages. "It is a job well suited to these ladies because every step is done by hand – the harvesting, pressing, washing, drying, packing. We use no machinery and there is a slow pace in the work." The women, says Hendrik, have developed an intuitive sense for spirulina cultivation. "Some of them have been working with us from the beginning and know when to harvest, how much to harvest, when to refresh the culture and so on."

The typical work day at *Aurospirul* begins with the harvesting. "During the early hours of morning, spirulina has the highest protein content," explains Hendrik. Using a gradation of filter cloths and many rinsings with fresh water, the women isolate the spirulina from larger particles. "As spirulina is microscopic, it needs a very fine filter to capture it, and we use a special screen printing cloth with a pore size of 500 microns."

Contamination by other micro-organisms is prevented by the high alkalinity of the water that develops in the tanks. Hendrik gives a scientific explanation. "We add minerals and salts to the water as a nutrient for the spirulina. As the organism photosynthesises, that is captures sunlight and makes its own food, one of the by-products is an alkali. So the pH level automatically rises and this prevents other bacteria and algae from growing." Also, as part of the processing, the sun-dried spirulina is exposed to a stream of hot air at 65 degrees Celsius. "This ensures we have a 100% food safe product." The spirulina is then packed hygienically, and sent to outlets.

The quality of Auroville's spirulina is certified by Auroville's Environmental Monitoring Service (EMS). "We have our samples regularly tested by EMS for moisture, total ash, protein, iron, fat, beta carotene and micro-nutrient content. EMS also checks for the presence of harmful bacteria such as coliforms, staphylococci, shigella and salmonella, and the presence of heavy metals such as lead, arsenic, cadmium and mercury. EMS, in fact, is an important key to our success as we can offer a certified product."

Aurospirul sells its products all over India, and to select markets abroad. Since a few months, it has offered the product online through *Auroville.com*. "And of course here in Auroville, as many Aurovilians have adopted spirulina in their daily diet."

A few Auroville units are also experimenting, adding spirulina to their products and coming up with 'spirulinized' fruit juices, honey, soap and even pasta. "The latter is not ideal, as spirulina should not be cooked. Cooking takes away a lot of the nutritional value, especially the heat-sensitive vitamins," comments Hendrik, who himself admits to consuming at least 20 grams a day. "I am my best client," he says with a toothy grin. "I really like the taste; it's simply delicious. Everything I eat, I sprinkle spirulina on it!"

If Hendrik's taste buds have adapted to the spirulina's taste, some Aurovilians still have a long way to go. "But we do have our fans who really like the taste," says Hendrik, "especially the crunchy variety. I can show you the fan mail." To improve the acceptance of spirulina, Hendrik is working on an updated spirulina recipe book.

What keeps Hendrik's enthusiasm burning is the fact that it is one of the foods of the future. "Growing spirulina in Auroville makes perfect sense because of what Mother has said about the food of the future," he explains. "She said: *The whole process of assimilation which weighs you down – this occupies so much of a person's time and energy – that should be done beforehand, and then one should be given something which is immediately assimilable, like what they are doing now with vitamin pills and proteins which can be assimilated directly, nutritious basics which are found in one thing or another and which are not bulky.*

"Spirulina fits the bill perfectly not only because it is rich in nutrients, but also because it has no cellulose in its cell walls so it is very easily digested and absorbed by the body. It is indeed a food of the future."

In conversation with Priya Sundaravalli

What is spirulina?

Spirulina is a tiny blue green algae in the form of a spiral that is found in mineral-rich alkaline lakes in tropical climates. It was the first link between bacteria and plants, and appeared on earth 3.6 billion years ago. In fact, spirulina belongs both to the bacterial and plant kingdoms, and may be considered one of the oldest forms of plant life on earth. The species cultivated in Auroville is *Arthrospira plantensis* of the Lonar variety. This variety originally comes from Lake Lonar, a crater lake in the state of Maharashtra in India. Aurospirul obtained its culture not from Lake Lonar – which has dried out – but from *Antenna Technology* in Madurai, which in turn got it from a gene bank in Switzerland.

Spirulina cultivation has no hidden environmental costs and produces more nutrition per acre then any other food. It uses water more efficiently per kg of protein then any other food source. Spirulina can be produced on non-fertile land with brackish water.

Spirulina is not a medicine but a food supplement that promotes health and vitality. It contains a lot of nutrients, such as all the essential amino acids, iron, and beta carotene. Spirulina is a low-fat, low-calorie, cholesterol-free source of protein.

(*For more info about spirulina visit: www.auroville.org/index/spirulina*)

Progress in Chennai's Adyar Poonga

In the June-July 2008 issue of *Auroville Today* we reported about the ecological restoration of the Adyar Creek in the middle of Chennai by Auroville's Pitchandikulam Forest Consultants and the plans for creating the Adyar Poonga, an eco park at the Creek.

"Things are moving per schedule," says Joss, the executive of Pitchandikulam Forest Consultants. "The Adyar Poonga will be ready in by the end of next year. He says that the work "to transform desecrated Mother Nature into a garden" has been very challenging. "A year ago, Adyar Poonga was a garbage dump site. Even as we started our work, tonnes of rubble were dumped in the place overnight," he recalled. His team oversaw the removal of 70,000 tonnes of garbage, before the planting of the saplings could start. Now already 19 species of fish and about 92 species of birds have been sighted

The park will be a showcase of the ecosystem of the Coromandel Coast with fresh water ponds, brackish areas, mangroves, mud flats, and islands. An information centre is being built where the public will be informed about the Poonga and shown technologies that can help clean up Chennai and so increase eco-awareness.

Auroville's Pitchandikulam Forest Consultants have also signed an agreement with the Tamil Nadu government to maintain the Adyar Poonga for two years.

The Ecological restoration work in progress at the Adyar estuary in Chennai.