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Spirulina cultivation procedure pdf

Spirulina cultivation procedure pdf. How to cultivate spirulina at home. How to cultivate spirulina in india. How to start spirulina cultivation. How to spirulina cultivation.

In the life cycle of vicious today's hectic schedules and the generation never sleeps, health is taking a hit and should be the top priority for all those who live the same life program. Spirulina is one of the world substance is totally unaware of it has been in increase in cultivation because of its use in food supplements and medicines. It is actually a micro-aquatic organism which is often referred to as the fungi family, but as a matter of fact the bacterium belongs to the family. It has several advantages, including cognitive development, physical growth and immunity. E 'was supposedly rediscovered in 1960 and has begun to find its way in the market supplements only from the late 20th century. Spirulina cultivation in India is growing at a very fast pace, especially in areas of Tamil Nadu where there are very convenient and comfortable to grow and sell products. Here is a complete guide on how to cultivate Spirulina. 1. Conditional required parameters Before you decide to start growing Spirulina, one should have all the resources and needs ready. First, what it is the climatic conditions of the area. This is something you can not change and could end up spending a lot in an attempt to create an artificial environment suitable for cultivation. The temperature required for good Spirulina products is between 25 Å ° C and 35 ° C. In addition, places that have a good amount of sunlight present throughout the cultivation process is more suitable. The best temperature range is however around 35-37 Å Å ° C. Cultivation during the rains or in places that are very damp should be avoided as it can contain the amount of light that is necessary for a good yield. So, this is the first step in deciding if your location is suitable for the cultivation of spirulina and if it's move through successive stages. 2. Materials required Spirulina is cultivated in large water tanks that are made of concrete or plastic. Although it may be of any large, the standard practice uses a tank of 10 x 5 x 1.5 feet. This is to ensure the relationship of other organic and inorganic products added to produce the best possible yield of Spirulina in the specified area. A pump is also necessary to draw water and pump water to the tank. It should be effective capable of pumping 1000 L of water as the amount that a € s request that will be filled up to a height of 2-3 feet in the tank. In addition to these it requires thermometer, pH sensors, air compressors, etc. for the control of various parameters of conditional growth. There is also a list of chemicals such as urea, sodium chloride, sodium bi carbonate, sulfates of magnesium, potassium and iron, and phosphoric acid which is required for the creation of an appropriate culture medium. The mixture after adding a mother culture kilogram spirulina should be shaken for a week for about half an hour a day with a long stick. 3. Process Cultivating Having a suitable tank is the first requirement and can be done either artificially in the form of a tank or cistern precalculated can be used for the process. The culture medium must be created after this and which can be made by mixing virtually all materials. All chemicals are added to 1000 liters of water and stir thoroughly. Sowing is done with concentrated spirulina mother culture which then multiplies in the medium for a period of time. The pH, which is a level of basicity and acidity of the culture medium should be checked at regular intervals. The concentration of algae is the deciding factor when spirulina can be and must be collected. Usually, the measurement is about 0.5 grams of algae per liter of culture medium. A Secchi disk can be used to measure this. Spirulina is a Very nutritious and tends to lose its nutritional value very soon, almost within hours of collection and, therefore, must be stored correctly. 4. Concentration Collection of spirulina The algae in the tank is the decisive factor for spirulin collection. As mentioned above, 0.5 g / l is ideal ideal What you get is usually 10 days after the seeding process is complete. The algae are collected and passed through a simple filter that performs the discharge of water. This is one of the most efficient methods of spirulina cultivation. After the filtration process, the algae are pressed on by large weights to further reduce the moisture content. The product is now quite dry and can be sent for further processing that takes place in the machines. process next involves the algae through processing machines that are used for making noodles and thin strips of algae is done for the ease of further processing. Algae-shaped pasta are kept on a clean cloth and is dried in the sun. It is allowed to dry an hour enemy couple under the hot sun. It 's hard that algae have completely dried and the company is ready for the next job. The next step involves grinding of algae similarly flour is produced. Spirulina is grounded and transformed into a powder which is then further tested. The testing of spirulina is done in laboratories where they control the edibility of the product and mark it safe for consumption or not. 5. Challenges in Spirulina cultivation and solutions Photo by PWRDF, CC BY 2.0 There are some challenges faced during cultivation of spirulina. Be careful with the water temperature and start growing a clean tank to avoid any discoloration of the medium. Leave enough sunlight or growing might turn pale and growth will stop. Sometimes there might be foaming in which case ash water can be added to reduce foaming which will have a shot ton of product. Urea is very important in growing and if a jelly type substance begins to form, it can make the mixing almost impossible. In this case, most of urea must be added to the medium. Do not allow the mixture to reach a stage where you could smell of ammonia. It's not good for the cultivation process and must be added more water. Keep the scale of nutrient control especially if the mixture begins to turn lime green. There could be problems, especially when you are new to the collection and early should be done at the right time. 6. The cost of cultivation and profits growing Spirulina is a low investment and high income agriculture. Those who have been in business for a while 'to learn about the economic benefits of it. The cost spirulina farming is low and the profits that can be achieved are quite high. Finding buyers for the product is also easy since there isnâ t much availability in the market and the product can be sold for almost as high as Rs 1200 / kg. The cost of cultivation depends on the cost of raw materials, local labor, packaging and logistics and are dependent on the local market. It can vary from place to place. 7. Maintenance and repairs This is a continuous process and can be carried out during the year. It 'important to keep the tank and repair if any damage incurred during the process. The culture must be protected from any external contamination of viruses and unwanted fungi. They can turn the whole process into a waste and incur huge losses for the manufacturer. Make sure not to overfill the tank, in every case that what you will get profits in any way, rather only make losses. 8. The training on the cultivation There are many programs out in the market that offer training spirulina cultivation to many people. skills training in the field is very important not to make stupid mistakes that could ruin the whole performance as a result of the formation process is precise and doesnâ e t Long time to learn both. After getting the certification and the training you can be your boss and start cultivating in your garden or you can manage Elsea some cultivation. The market is open and flexible for spirulina cultivation and flow is enormous since it has a lot of advantages. After this is in a better position for the cultivation and sale of spirulina in the market. It is one of the most efficient and e ways to earn money. Spirulina uses are immense and you ever go to buyers given to maintain product quality and standard. The spirulina mass is squeezed in good 'spaghettini' and placed to dry in the sun. Due to the favorable climate in southern India, this usually takes only a few hours. During the process, the spirulina takes the characteristic flavor, but only slightly so due to the open air drying system. Aurospirul Spirulina dried in the sun has a pleasant aroma and flavor. The final phase of the drying process takes place in a hot air dryer, in order to achieve exact humidity, as well as a 100% safe food product. The result: pure, dried in the sun crispy spirulina, ready for consumption. Simplified method for the cultivation of Spirulina for domestic use S. Krupanidhi * 1, P. Srivani1, K.Tony1, S.Akhila1, M. Nageswara Rao 1, M.AMaze1, B. Rajesh 1, K. Vimila1, K. Dhanalaksmi1 , K. Pavan Kalyan1, M. Indira1, MD.N. Bobby1, K. Prakash Narayana Reddy1, R. Sivakumar2 1 Department of biotechnology, Vignana S Foundation for science, technology and university research, Vadlamudi 522.213 Andhra Pradesh, India2Tejas biotech Pvt. Ltd, Chennai Copyright: Å Å © 2017 S.Krupanidhi et al. This is a free-to-access article distributed under the terms of the Creative Commons Attribution License, which allows use without restrictions, distribution and reproduction by any means, provided that the original author and the source are Credit/Received Date: 3 May 2017; Å, accepted Date: Å, May 17, 2017; Å, Date Published: å, 29 May 2017 Spirulina is a blue-green alga. There are three predominant species in India that is Spirulina Platensis, Fusiformis Spirulina and Spirulina Maxima. All of them are abundantly enriched with nutrients. As a result, Spirulina formulations are made available on the market for use. Unique characteristics of spirulina are autotrophes and alkaliphyletic and therefore the energy requirement to maintain its culture at home are almost canceled. The sunlight we get in our homes is more than sufficient for its growth and replication. Mineral fueling only needs to be completed. Still, another important ingredient in the medium of culture is pH. Spirulina prefers to grow in extreme alkaline in the sunlight that holds from most optional bacteria and mushrooms that otherwise contaminate the culture ground. Therefore, little sophisticated it is necessary for its maintenance in domestic premises. The average composition tried in our laboratory led to the profuse growth of culture as indicated through the intensity of the green color in the most wide plastic tanks and biomass obtained was processed for the preparation of dried flakes. Methods: a test for mild cognitive deterioration: Montreal cognitive evaluation (Moca test), measuring body composition from an internal scan monitor, and stress level tests were performed by measuring amylase levels Å Å ± in saliva from the sublingual gland . For statistical assessment of scores before and after each cognitive test intervention, T tests were used. To test the relationships between the cognitive test score and the measured value of body composition and Å Å ± - amylase levels, Pearson Å e s correlation coefficient was used. RESULTS: Significant improvements in cognitive function have been detected after each intervention, with the strongest correlation variable with function and body composition cognitive comparisons being blood vessel. Furthermore, there has been a negative correlation between stress and cognitive function, with those patients with high levels of effort having reduced cognitive function. CONCLUSIONS: The interventions that combine group-games and the formation of the brain are in preventing dementia. Negative correlations have been detected between cognitive and vascular and stress levels. Therefore, in order to maintain the cognitive function, it is necessary to improve life in the diet as a means to improve vascular age and carry out activities to provide provide relief. Keywords: You Spirulina maxima, Mineral Composition, Cultivation Culture Spirulina, In-House Among the various species of algae, Spirulina has been heavily exploited and became a commercially important filamentous cyanobacterium because of its inherent ability to wealth accumulation natural resources such as proteins, minerals, vitamins and some PUFA. Therefore, various methods have attempted to grow both in the laboratory, mass and industrial scales (1, 2, 3). external pond cultivation of algae for the production of proteins å å from a single cell is one of the oldest technologies intuitively initiated by Borowitzka and Borowitzka (2). Various attempts as a closed system (4), external open tanks with paddle wheel (5), and the photo-reactor system (6), using drawings confectionery, agricultural and poultry wastes (1) are in vogue. In one case, the yield containing 35 tons of spirulina per hectare per year from a commercial pond was reached in Siam Algae site near Bangkok (7). The attributes of its mass cultivation mainly are due to photosynthetic pigment, phycocyanin, the adaptability, the plasticity and its asexual reproduction by binary fission. Due to its growing popularity as a nutritional abundant biological resources, it is used in poultry, aquaculture, feed, waste water treatment and agriculture (7:08) and supplementing human dietary needs. As a result the single protein of Spirulina cell is recycled in the ecosystem at different trophic levels. So taking into account its importance, it is aimed to develop a simple protocol for Spirulina culture in our residences being tropical climatic conditions favorable for the growth of algae. The mother culture of Spirulina maxima was obtained from M / S Tejas Biotech Pvt Ltd, Chennai. 50 ml mother culture has been mixed with 200 ml initially designed culture medium. The average composition creation was: NaCl :. 2.0 g, NaHCO3. 16.0 g, NaNO3 :. 2.0 g, K2SO4 :. 1.0 g, KH2PO4 :. 0.5 g, FeSO4: 100 mg per liter of water (boiled and cold) with a pH value of 10.5. The initial culture was held on an orbital shaker with natural light for 7 days and observed the intensity of the green color through UV spectrophotometer at 540 nm. Once, the OD value of 0.8 was reached, the initial culture has been transformed into plastic tubs 10.0 L volumes of mass culture in 1: 4 (initial proportions grown culture: medium). Whirlpools with mass culture were allowed to direct sunlight for 7 days. The growth of Spirulina was noticed everyday observing the intensity of the green color and replenished with fresh medium 1: 2 on the 4th day. At the end of the 7th day, the harvest was done through a muslin cloth (Fig.1.8), the turbid mass is centrifuged and then brought into a syringe. With the aid of the piston, the mass Spirulina semisolid pushed through a narrow nozzle of the syringe and allowed to collect on a clean surface of porcelain tiles, de-hydrated under initially ceiling fan and subsequently dried under the sunlight. Spirulina dry fragments appeared as fragile green needles that were ready for consumption. A few comments were made as the growth of Spirulina culture and microscopic morphology. Figure 1: Å Å Å (1) initial culture with 50 ml mother culture medium +150 ml, (2) S Å ° of initial culture day shows intensity growth, (3) the 7th day the initial culture mixed in 1: 4 ratio in 1.0 L media in an open tank, (4) 0-day mass culture to direct sunlight, (5) 3 Å ° of relatively good growth mass culture day, (6) the 7th day of mass culture, (7) Spirulina 10 magnifications isolated by a dense mass culture, (8) collected Spirulina cultivated with gauze, (9) collected biomass and (10) biomass obtained was squeezed through a syringe as needles for drying in suns with the intention of developing a simple protocol for the housewife to adopt the technique of spirulina culture at home to practice, we followed the aforementioned procedure described. There has been a 4-bit bio-ins increase by within day culture period. To begin with 50 ml mother culture obtained from M / S Tejas Biotech Ltd, Chennai containing 0.738 mg was sown in 200 ml of culture medium (Fig.1.1 and 2) At the end of a series of steps described in materials and methods and as shown in Fig.1, there was a profuse (Fig.6) growth of pure culture of Spirulina (Fig.7) and we collected 2.871 g (Fig.1.9). This biomass suspension has been washed twice to bring the pH to 7.2. The same was left to dry under direct sunlight for three hours after the spread in the form of thin bars on a porcelain stoneware using a plastic syringe (Fig.1.10). The dried spirulina has been preserved in an Eppendorf vial for consumption. All the steps followed in the protocol did not require any laboratory sophistication. In addition, this protocol produced pure strains without any contamination (Fig.1.7). In addition, the inorganic chemicals used are neither rare nor © © unsustainable. 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