HIGH VALUE MICROALGAE TO CLEAN THE AIR

Micoperi Blue Growth took part in the third edition of the REM (Renewable Energy Mediterranean Conference & Exhibition), dedicated to renewable energy, under the patronage of the Environmental and Economic Development Ministries, that was held in early March in Ravenna (Italy)**.**

The event, that alternates every two years with OMC (Offshore Mediterranean Conference & Exhibition), is the most important international showcase of the Oil & Gas in the Mediterranean area. About fifty companies and associations attended it and 40 papers and 8 workshops were presented.

Micoperi Blue Growth, is an Italian start up projected towards the development of the "Blue Economy". The current team has a strong relevance, considering that many components have returned to Italy from important experiences abroad. The MBG researchers isolate and select microalgae from different natural aquatic environments that, free from contaminants, are stored and studied for the identification of optimal growth and purity conditions. This enables MBG to ensure innovative solutions to different productive sectors, from food passing through the nutraceutical up to medical diagnostics. Furthermore the traceability and high process quality characterize and make the activity of MBG as unique.
The research activities are divided between Ravenna, where a pilot plat for the production on an industrial scale has been built, and Ortona, where a campus with two main divisions of an area of 2000 square meters has been established: the Algalab which is the heart of the research and the Algafarm where different species of algae are grown in separate areas.
Among the Micoperi Blue Growth purposes, there is definitely the sustainability of its activities, for instance contributing to reduce the carbon dioxide in the air with the production of microalgae.
It is well known that the carbon dioxide pumped into the atmosphere by burning fossil fuels and other human activities is the most significant greenhouse gas (GHG) and thus the most important gas affecting the climate change.
The biological sequestration of CO2 through photosynthesis could be an interesting strategy, because it is a physical-chemical process that converts CO2 into organic compounds using light energy, and releases molecular oxygen.
Microalgae, thanks to their systems, coming from over millions of years of evolution, are able to maximize, compared to plants, the use of light and carbon dioxide, transforming the carbon of CO2 into biomass and into macromolecules with numerous properties: anti-inflammatory, antiviral, antimicrobial and anticancer.
Following this logic MBG has developed a controlled system for the production of high quality Spirulina, a microalgae from the natural potential in the pharmaceutical, nutraceutical and medical field.
The cultivation will be done in modular greenhouses in Emilia Romagna, in controlled supply chain and all yearlong.
Thanks to the use of atmospheric CO2 as a source for cell growth, an effective reduction of CO2 will be assessed, since Spirulina consumes CO2 and produces O2 at high rates.
Indeed, for 1 kg of biomass produced, 0.8 kg of CO2 will be consumed, and since the target of the production set is estimated at around 100 tons of algal biomass per year, the production of Spirulina contributes substantially to the reduction CO2.

Concise CV

TONIA PRINCIPE – MICOPERI BLUE GROWTH – RESEARCH AND DEVELOPMENT

Master degree in Marine Biology at Università Politecnica delle Marche(UNIVPM). Internship at Umea Plant Science Center (Sweden) and at Algae and Plant Physiology Laboratory (UNIVPM) to investigate metabolomics in microalgae. Involved as research scientist for C.I.R.C.C. Consortium to select microalgae strain producing specific class of lipids for plastics industry. Experience in algal culturing techniques and development of new methods to monitor microalgae cellular composition. Currently researcher to Micoperi Blue Growth to optimize large scale biomass production for biotechnological application.

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Abstract:

Direct carbon combustion for energy production generates more than 24 gigatons of carbon dioxide (CO_2) annually. As a result, atmospheric CO_2 concentrations have risen from 295 parts per million (ppm) to 380 ppm over the last 100 years, and have contributed substantially to global warming, climate change, and resultant biological extinctions. Algae have higher photosynthetic efficiency than land plants because of greater abilities to capture light and convert it to usable chemical energy. Under ideal growth conditions algae direct most of their energy into cell division, allowing for rapid biomass accumulation.

Micoperi Blue Growth have focused its attention on microalgae because of their commercial applications as natural sources of valuable macromolecules, including carotenoids, long chain polyunsaturated fatty acids and phycocolloids. As photoautotrophs, their simple growth requirements make them attractive for bioprocesses aimed at producing high added-value compounds that are in large demand by the pharmaceutical market. A few compounds synthesized by microalgae have indeed proven to possess anti-inflammatory, antiviral, antimicrobial, and antitumoral features.

For these reasons, Micoperi Blue growth has developed a microalgae biomass system to **produce** *microalgae characterized by a high commercial value and a high quality standard at a* **reasonable** *price,* **integrating** *the heat that comes out from an anaerobic digestor* **to reduce the gasseous emission and optimize the entire production cycle.**

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