



εJCubε

# Greentech

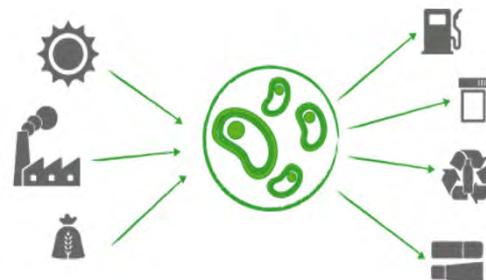
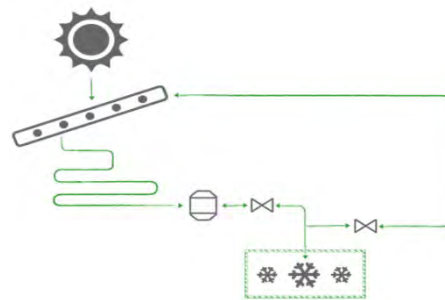
ENERGY FOR THE FUTURE



## MISSION

Searching **efficient solutions** responding to **ethical values** of **environmental sustainability** by optimizing alternative energy sources.

A continuous commitment led by a **strict attention** and **strong passion** for research, developing **High Value Added Products**, from industrial process optimization to functional food ingredients through the recycling of the vegetation waters (VW) and microalgae cultivation.



## HISTORY

GreenTech S.r.l. was founded by **Giulio Santori** and **Matteo Moglie**, two scientists who began a collaboration during their PhD led by the professor Polonara.

In 2007, the first result was the “Solar Ice Maker”: project that later would be awarded at **eCapital**.

In 2013 the company became an academic spin-off and it passed the selection to be part of the **JCube** project.

From 2014 Greentech improved his team expanding the collaboration to new partner.

# TEAM

The **interdisciplinary** group currently consists of university professors, postdocs, phd students and experienced engineers.

**Enthusiasm and professionalism** of the staff are the base of our company as we **point to continued innovation** in renewable energy, environmental sustainability and high value functional food production.



Eng. Giulio Santori



Eng. Matteo Moglie



Eng. Emanuela Brunetti



Eng. Fernando Fattore



Eng. Duilio Guetti



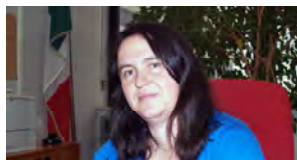
Francesca Alberti Ph. D.



Paola Rosati



Eng. Giovanni Ciriachi



Prof. Alessandra Norici



Prof. Raffaele Zanolì



Prof. Mario Giordano



Eng. Francesco Corvaro

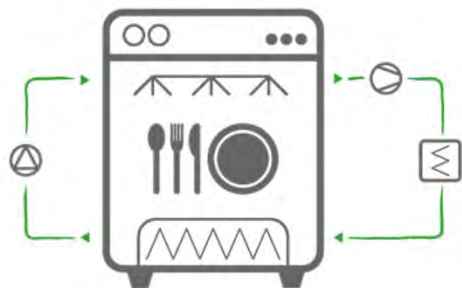
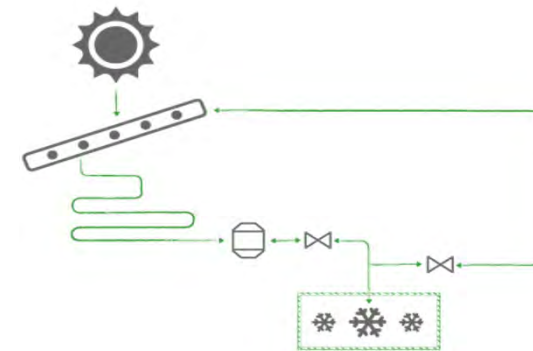


Prof. Fabio Polonara

# PRODUCTS

## SOLAR ICE MAKER

The SIM is a refrigerating machine powered by solar radiation and designed for storage of vaccines.

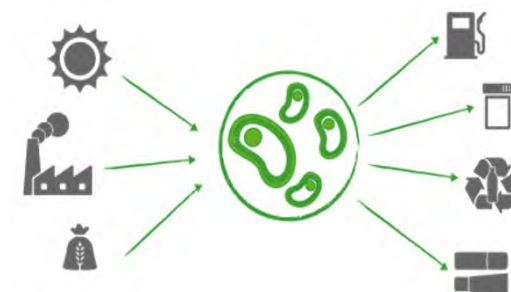


## MOISTURE DRYER SYSTEM

The MDS is a simple box designed to improve the energy consumption and increase performances of the drying cycle of a typical dishwasher.


## MICROALGAE

Microalgae are photosynthetic microorganisms able to synthesize a multiplicity of compounds simply using for their growth light, carbon dioxide and nutrients.





# SOLAR ICE MAKER



**1,5 billion of persons  
live without electricity.  
600 milion in Africa.**

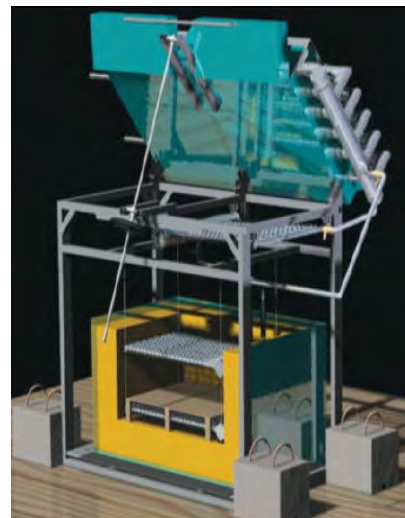
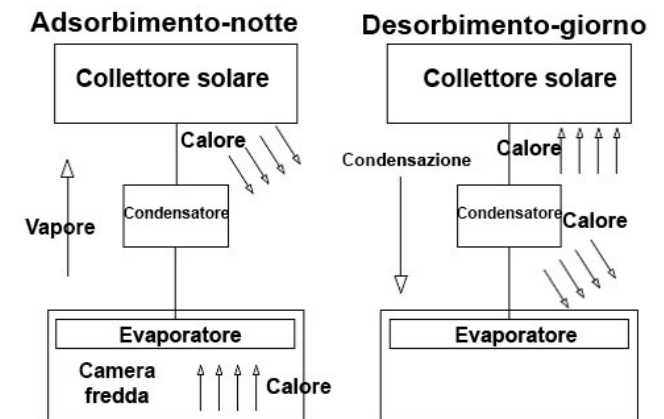
# SOLAR ICE MAKER

The SIM is a solar refrigerator, only **powered the by solar radiation**, designed for the storage of vaccines.

The working principle is mainly due to a different thermodynamic cycle based on the **adsorption**.

The machine itself has few main units and the biggest difference with a traditional refrigerator is the **absence of the compressor**.

Between his advantages there are the **independence from any energy supply**, the **absence of maintenance** and emissions, the thermal storage of the energy.



# MOITURE DRYER SYSTEM

The Moisture Dryer System offers an alternative method for the drying cycle of a dishwasher.

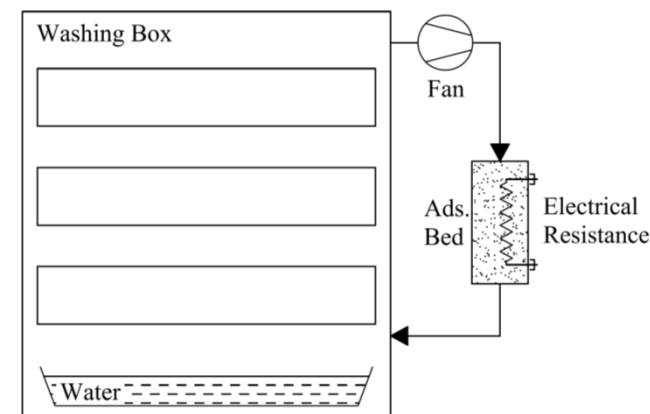
The technology **ensures improvements in the most important performances:**

The **washing cycle is shorter (20%),**

The percentage of the water that stays into the dishwasher box is lower (higher quality of the drying)

The **electricity consumption is lower (30%)**

All those performances are achieved without significantly influence of the production costs of the whole appliance.





# MICROALGAE

Microalgae are **photosynthetic unicellular organisms**, representing a unique opportunity to discover novel **metabolites with biological activity** (e.g., antioxidant, antiviral, antimicrobial, antihypertensive, etc.), and to produce known metabolites from natural sources.

## Growth parameters:

### ABIOTIC

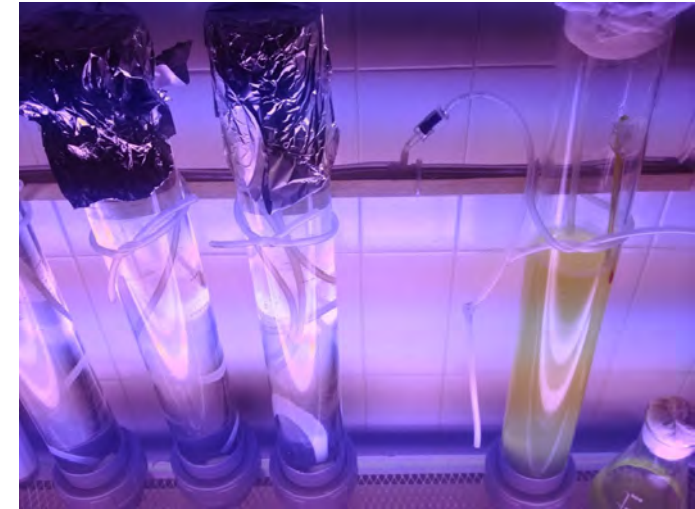
- light
- temperature
- nutrients
- CO<sub>2</sub>
- pH
- salinity
- Toxic pollutant

### BIOTIC

- bacteria
- fungi
- virus
- Competition with other species

## Operational parameters:

Depth, harvesting, inoculum condition





## MICROALGAE



## La Spirulina Greentech!

***Spirulina*** is a blue-green microalgae rich in **protein and essential aminoacids**, minerals (iron, calcium, magnesium, potassium, selenium), **vitamins** (A, B, C, E) and **polyunsaturated fatty acids** (omega-6, omega-3). It is used for the preparation of supplements and functional foods.

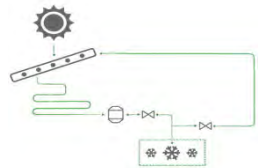
### Market opportunity

#### Italian turnover in million €

| Segment                | 2010 | 2011 | 2012 |
|------------------------|------|------|------|
| Nutritional supplement | 1443 | 1520 | 1629 |
| Functional food        | 1861 | 1950 | 2043 |
| Specific animal feed   | 6043 | 7500 | 9308 |

#### Market volume in milion of box

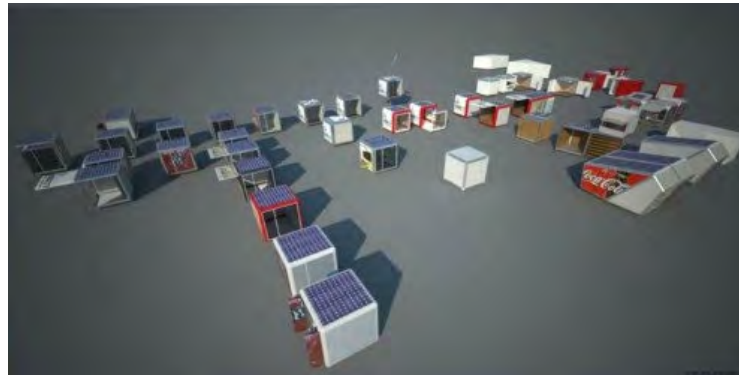
| Segment                | 2010  | 2011  | 2012  |
|------------------------|-------|-------|-------|
| Nutritional supplement | 127,5 | 137,5 | 140,1 |
| Functional food        | 969   | 1002  | 1040  |
| Specific animal feed   | 14265 | 14667 | 14413 |



## NEW PROJECT

### PROBLEM

Houses of the developing countries not connected to the grid spend **about 40% of their revenue on electricity substitutes.**

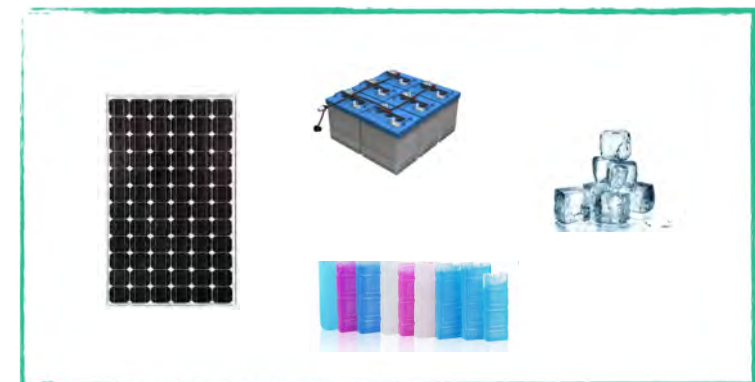


### PROPOSED SOLUTION

The idea of a **kiosk** that will serve areas without energy supply, or generally lacking even in basic services, is a an **opportunity** to improve the quality of their live offering new services and new market opportunities.

Our idea is to have some peculiarities to differentiate our solution:

- **No inverters**
- **Thermal storage**
- **Movable walls**
- **Modular in the offered services**





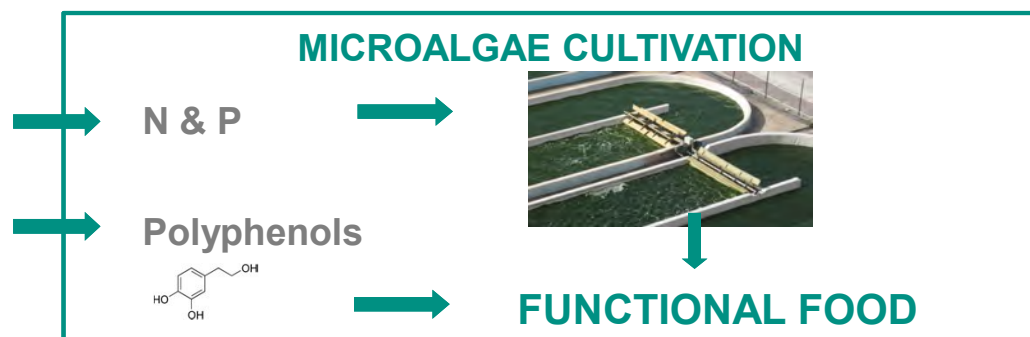
## NEW PROJECT

### PROBLEM

The VW obtained during olive oil extraction are a **huge pollutant** both for high organic load and for phytotoxic and antibacterial phenolic substances present which resist to biological degradation.

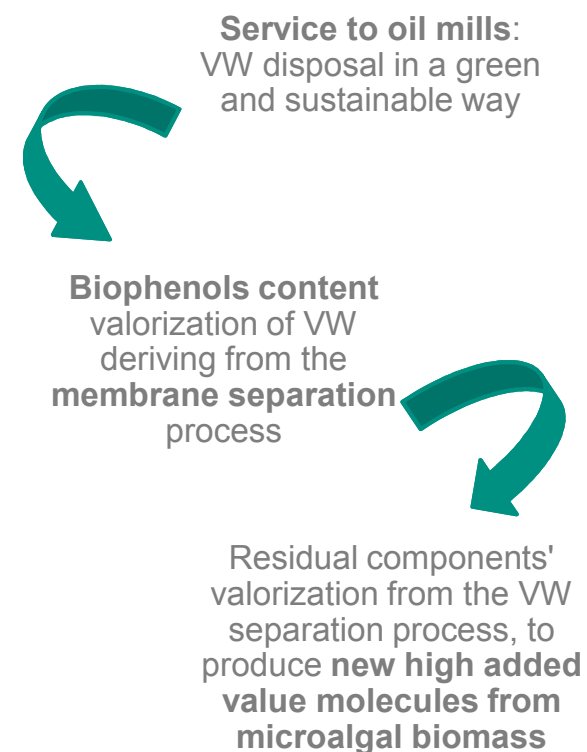
| Vegetation water      |             |
|-----------------------|-------------|
| Water                 | 75 - 80%    |
| Polyphenols           | 0,3 – 2,4 % |
| Nitrates & phosphates | 0,8 – 12 %  |
| Dry part              | 6 – 14 %    |

### PROPOSED SOLUTION

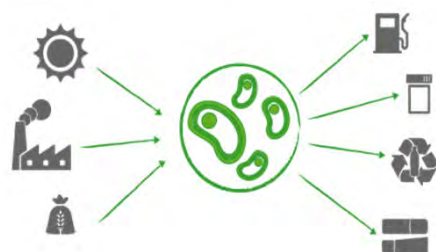
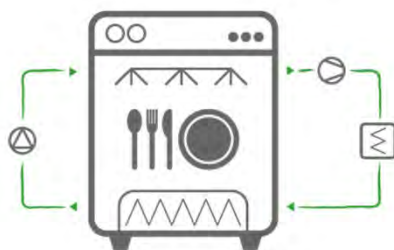
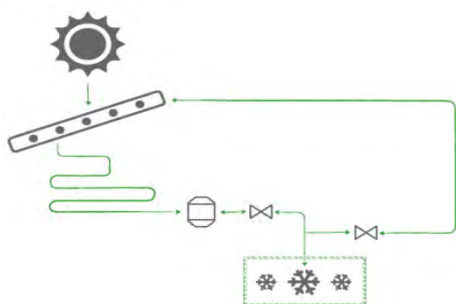


- Clean water
- Organic Fraction

### PROJECT'S KEY FEATURES







Thanks for attention  
Duilio Guetti



JCub<sup>®</sup>



**GreenTech**  
ENERGY FOR THE FUTURE

**GreenTech s.r.l.**

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