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ROTOCAV: The Innovative Extraction Technology Based On Hydrodynamic Cavitation

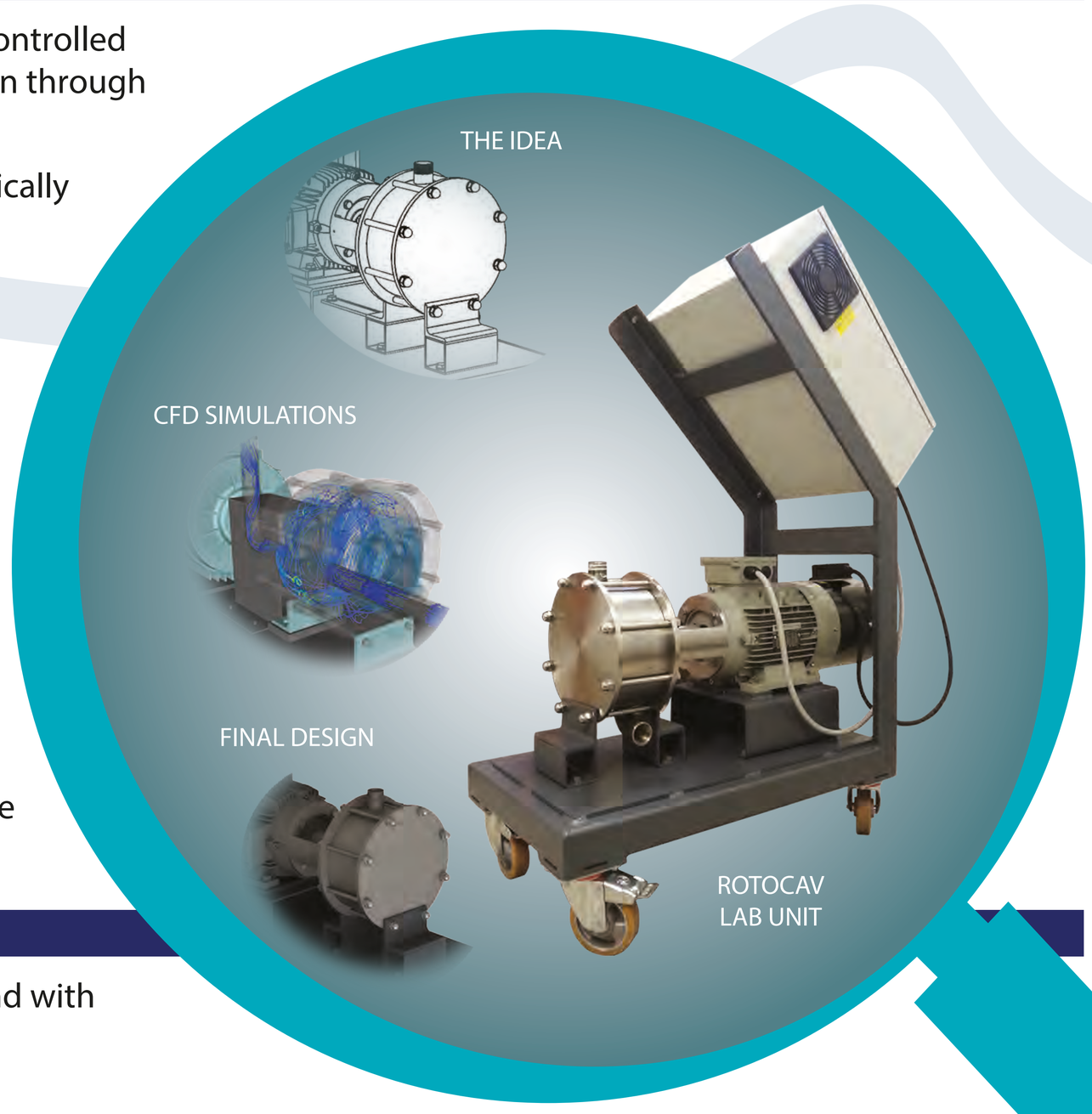
WHAT IS ROTOCAV?

ROTOCAV is a patented technology that achieves controlled hydrodynamic cavitation by forcing fluid or suspension through its rotor-stator apparatus.

During high speed rotation, rotor channels are periodically aligned with stator channels.
The processed suspension is accelerated in the radial direction and, flowing through free channels, is subjected to:

- **Shear Stresses**
  These mechanical effects reduce solid particles size, increasing specific surface area and promoting solvent access to the cell content;
- **Pressure waves and cavitation**
  The micro-jets generated during the treatment break the cell membranes, helping the release of their content.

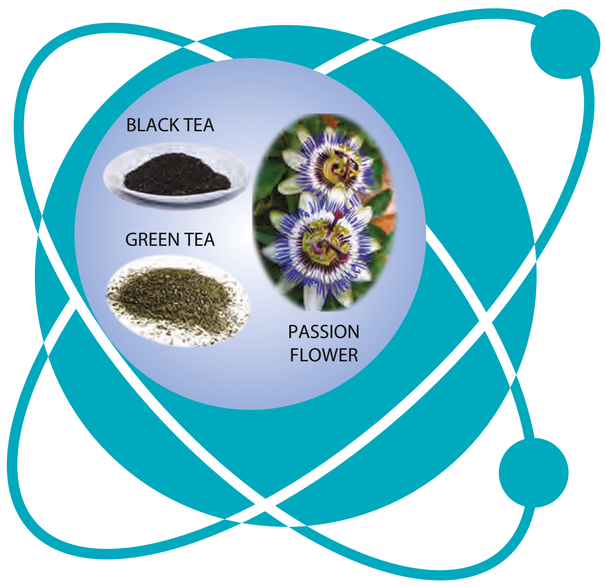
  Cavitation increases mass transfer and diffusivity of the bio-component in the liquid medium.

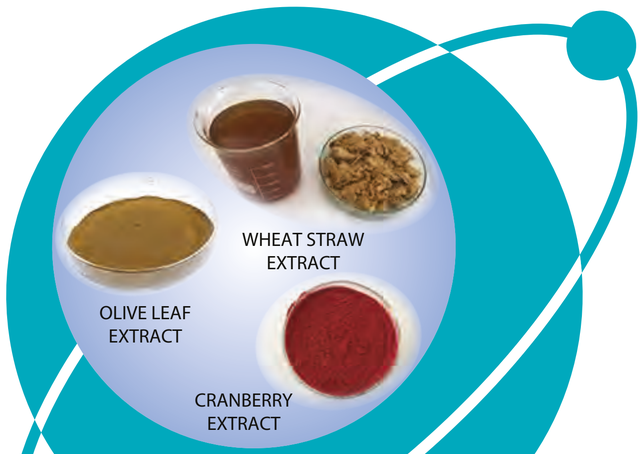


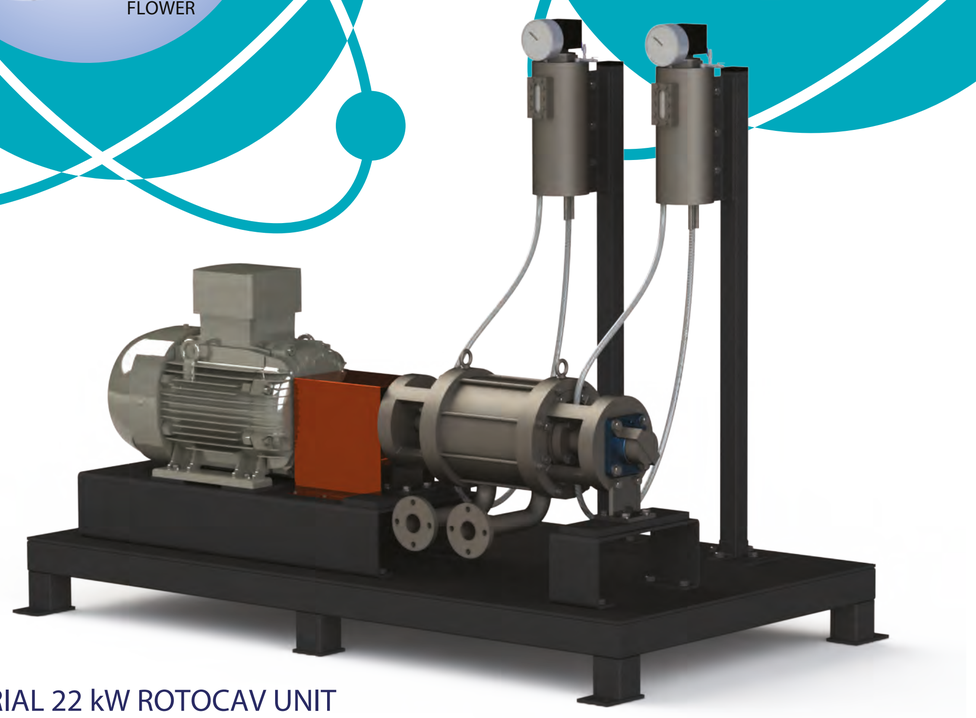
ADVANTAGES

- Modular design validated through CFD simulations and with extensive design of experiments
- Efficient (high extraction yields)
- Maximization of the use of the raw matrices
- Versatile (it can process a great variety of feedstocks)
- Short processing time
- Low operative costs
- Compact (small reaction and mixing hold-up)
- Safe technology

ROTOCAV: AN EXCELLENT EQUIPMENT FOR PROCESS INTENSIFICATION







INDUSTRIAL 22 kW ROTOCAV UNIT

The ROTOCAV design is defined according to process intensification approach, which improves the development of faster, cleaner, smaller and cheaper devices. ROTOCAV enhances existing processes and product functionality and it is really appealing if compared to conventional systems.

It can be successfully applied for many applications:

- Efficient and rapid mixing of solid/liquid, liquid/liquid, liquid/gas
- Homogenization of immiscible liquids to generate stable emulsions
- Wastewater treatment
- Debacterization
- Extractions from natural matrices
- Chemical reactions
- Delignification of wheat straw for paper manufacturing
- Upgrading of crude oil
- Bioethanol yield enhancement
- Biodiesel production