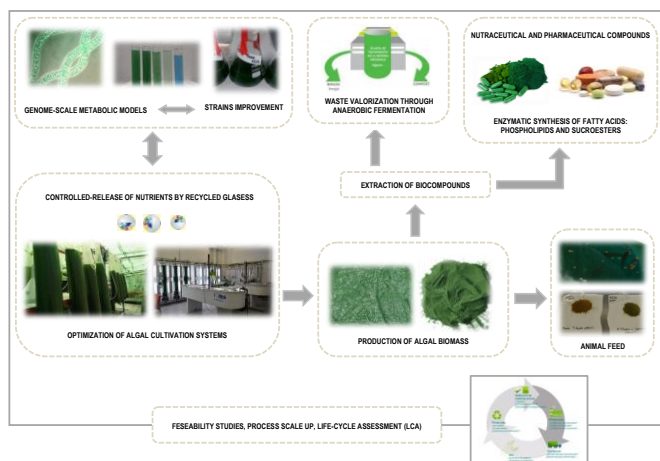


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THE INSPIRA1-CM PLATFORM IS SUPPORTED BY THE COMMUNITY OF MADRID (CM) AS A PIONEERING TECHNOLOGICAL OPPORTUNITY FOR IMPROVING THE GROWTH AND PROPERTIES OF "SPIRULINE" (*Arthrospira platensis*), AN INDUSTRIALIZED BLUE-GREEN CYANOBACTERIUM THAT IS CULTURED WORLDWIDE AT LARGE SCALE DUE TO ITS HIGH NUTRITIONAL VALUE FOR FOOD AND FEED.

THE TECHNOLOGICAL PLATFORM INSPIRA1-CM PROPOSES AS THE MAIN SCIENTIFIC AND TECHNOLOGICAL OBJECTIVE THE DEVELOPMENT OF BIOTECHNOLOGICAL TOOLS TO IMPROVE THIS BACTERIUM AND THE OPTIMIZATION OF THE BIOMASS PRODUCTION FOR VARIOUS INDUSTRIAL PURPOSES.



### GOALS AND OBJECTIVES

1. GENOME SEQUENCING OF OUR INDUSTRIAL STRAIN AND THE SUBSEQUENT GENOME-SCALE METABOLIC MODEL OF THE BACTERIUM.
2. OPTIMIZATION OF BIOREACTOR OPERATING CONDITIONS, PROVIDING INTERACTIVE AND ITERATIVE DATA TO SUPPORT THE METABOLIC MODEL AND DEVELOPMENT OF HIGHLY INNOVATIVE TECHNOLOGIES FOR THE CONTROLLED RELEASE OF NUTRIENTS BASED ON THE USE OF RECYCLED GLASS BEADS.
3. DEVELOPMENT OF MOLECULAR TOOLS FOR THE GENETIC MODIFICATION OF STRAINS AND FOR THE OBTENTION OF MUTANTS WITH INDUSTRIAL INTEREST.
4. EXTRACTION OF BIO-COMPOUNDS FROM SPIRULINA. YIELD AND COMPOSITIONAL ANALYSIS.
5. ENZYMATIC SYNTHESIS OF FATTY ACIDS: PHOSPHOLIPIDS AND SUCROESTERS.
6. DERIVED PRODUCTS WILL BE TESTED BY USING ANIMAL MODELS TO FIND NEW BENEFICIAL PROPERTIES FOR HEALTH (E.G., CARDIOVASCULAR, IMMUNOSTIMULANTS).
7. VALORIZATION OF THE WASTES RESULTING FROM THE EXTRACTION OF SPIRULINA FOR ENERGY APPLICATIONS THROUGH HIS TRANSFORMATION INTO BIOGAS.
8. SYSTEMS ANALYSIS APPLIED TO THE WHOLE PROCESS WILL ALLOW US TO DETERMINE THE FEASIBILITY OF THE PRODUCTION SYSTEM AT INDUSTRIAL SCALE CONSIDERING ALL TYPES OF SOCIOECONOMIC AND ENVIRONMENTAL PARAMETERS, APPLYING LIFE CYCLE METHODOLOGIES.

THE PLATFORM PROVIDES THE OPPORTUNITY TO LEAD THE FIELD OF SPIRULINE AND MICROALGAE AT NATIONAL AND INTERNATIONAL LEVELS, GIVING TECHNOLOGICAL SUPPORT TO THE COMPANIES OF THE AGRIBUSINESS, ENERGY OR ENVIRONMENTAL SECTORS CURRENTLY OPERATING IN DIFFERENT COUNTRIES.

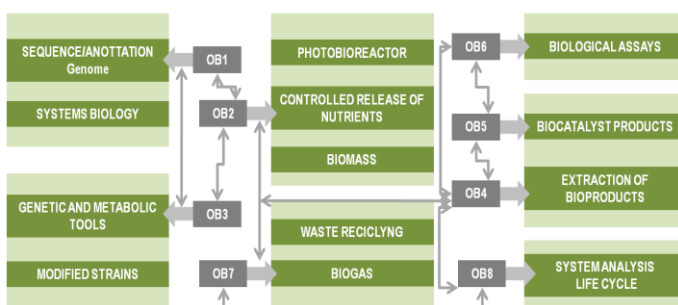
### PARTNERSHIP

THE PLATFORM INSPIRA1-CM IS CARRY OUT BY THE EXPERIENCE OF A TEAM WITH 6 ACADEMIC RESEARCH GROUPS (CIB-CSIC, ICP-CSIC, ICV-CSIC, UAM, UCM AND URJC), A REGIONAL LABORATORY SERVICE (BIOPEN-IMDEA), 2 ASSOCIATED GROUPS (ETSI-MONTES AND UPM-AGRÓNOMOS) AND 6 COMPANIES (BIODESMA, ACTAFARMA, GRUPO SOIL, TILAMUR, NEOALGAE AND CANAL DE ISABEL II).



### STRAIN DESIGN

### PROCESS OPTIMIZATION



### COURSES AND WORKSHOPS

- "BIOTECHNOLOGY OF MICROALGAE: INDUSTRIAL APPLICATIONS": CENTRO DE INVESTIGACIONES BIOLÓGICAS (CIB-CSIC). JOSÉ L. GARCÍA (CIB-CSIC)
- ENERGY USE OF MICROALGAE: UNIVERSIDAD REY JUAN CARLOS/IMDEA ENERGÍA. JAVIER DUFOUR/CRISTINA GONZÁLEZ.
- FOOD APPROACHES FROM MICROALGAE: INSTITUTO DE CATÁLISIS Y PETROLEOQUÍMICA (ICV-CSIC), INSTITUTO CERÁMICA Y VIDRIO DEL (ICV-CSIC) Y LA UNIVERSIDAD AUTÓNOMA DE MADRID. CRISTINA OTERO/LUIS PASCUAL/MERCEDES FERRER.
- GENETIC AND METABOLIC ENGINEERING OF MICROALGAE: UNIVERSIDAD COMPLUTENSE. JULIÁN PERERA.

COORDINATING GROUP : CIB-CSIC (C/ Ramiro de Maeztu 9, 28040 - Madrid)

THE HIGH PLURISDISCIPLINARITY OF THE TECHNOLOGY PLATFORM INSPIRA1-CM ALSO PROVIDES A SUITABLE FRAMEWORK TO ACHIEVE THE TRAINING OBJECTIVE OF THE PROGRAM ORIENTED TO A COMPREHENSIVE EDUCATION OF NEW SPECIALISTS.