Plan Overview

A Data Management Plan created using DMPonline

Title: “ Cultivo de Dunaliella salina para el aprovechamiento de carotenos como alternativa productiva en las salinas de la Bahía de Cádiz”

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Template: DCC Template

Project abstract:

The Bay of Cádiz, an estuarine ecosystem of ecological and economic importance in southern Spain, presents an optimal setting for exploring sustainable and high-value aquaculture practices. In this context, the cultivation of Dunaliella salina, a cosmopolitan halophilic microalgae, emerges as a promising opportunity due to its multiple industrial applications and environmental benefits. This research proposal focuses on the development and optimization of Dunaliella salina cultivation in the marshes of the Bay of Cádiz, considering the unique environmental conditions and specific challenges (ecological, social and economic) associated with its production.

D. salina has been extensively studied for its ability to produce large quantities of beta-carotene and other valuable metabolites. These compounds have an increasing demand in the food, industrial, cosmetic and pharmaceutical sectors. Moreover, the ability of this microalgae to thrive in high salinity conditions makes it an ideal candidate for aquaculture in marshes, where conditions are often too extreme for most other algal species.

The Bay of Cádiz, with its Mediterranean climate and extensive areas of marshes and estuaries, offers a natural environment for the cultivation of D. salina. However, to fully harness this potential, it is crucial to understand and optimize the interactions between the microalgae and its environment. This includes studying nutrient dynamics, managing saline stress and essaying the most efficient harvesting and processing techniques.

This research proposes a multidisciplinary approach that combines methods from biology, ecology, engineering and economics to develop a cultivation system for D. salina that is sustainable, profitable and adaptable to local conditions. The goal is not only to produce a high-value product but also to contribute to the conservation of the estuary ecosystems and promote sustainable economic development in the region.

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Copyright information:

“ Cultivo de Dunaliella salina para el aprovechamiento de carotenos como alternativa productiva en las salinas de la Bahía de Cádiz”

Data Collection

What data will you collect or create?

Productivity data, growth rate data, environmental data. Experimental measures data, tabular data and models.
Models data to microalgae culture in natural environment are long term useful data.
No data will be reused or purchased
Data volume: Gb, raw and procesed data.
No need to include additional costs
Data format: text (.txt), open format

How will the data be collected or created?

Collected by direct measurement.
Standar for software development quality data: ISO33000
Standar for data quality control, evaluation and improvement: ISO25012

Documentation and Metadata

What documentation and metadata will accompany the data?

The data will be accompany with strains metadata.
The metadata will be created manually.

Ethics and Legal Compliance

How will you manage any ethical issues?

We own the authorship of the data and give the consent for data sharing and data preservation.
If protection is required, will be granted via anonumisation.
There is no sensitive data.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

We own the data and will be licensed for free use, reuse, sharing.
No restriction will be placed.

Storage and Backup

How will the data be stored and backed up during the research?

At least 4 copys of the data will be stored on external storages at different facultys, 2 on Puerto Real campus (science faculty, CASEM), 2 on researchers residence. Also the data will be saved on university IT teams.

How will you manage access and security?

No data is confidencial, it is very low risk data.

Selection and Preservation

Which data are of long-term value and should be retained, shared, and/or preserved?

The strains growth rate data and Models of microalgae culture in natural environment are long term useful data.

What is the long-term preservation plan for the dataset?

The data will be held on CSIC repository. If neede will search other repositorys to compliment.

Data Sharing

How will you share the data?

First will share through CSIC repository, the data will be avalaible after quality control.

Are any restrictions on data sharing required?

There will be no restriction in data sharing.

Responsibilities and Resources

Who will be responsible for data management?

Both principal investigators are responsible for all the data management (capture, metadata production, data quality, storage and data sharing)

What resources will you require to deliver your plan?

No extra resources are required to deliver the plan.