

# Bioprospecting of Pigment-Producing Halophilic Microorganisms from the Sečovlje Salt Pans

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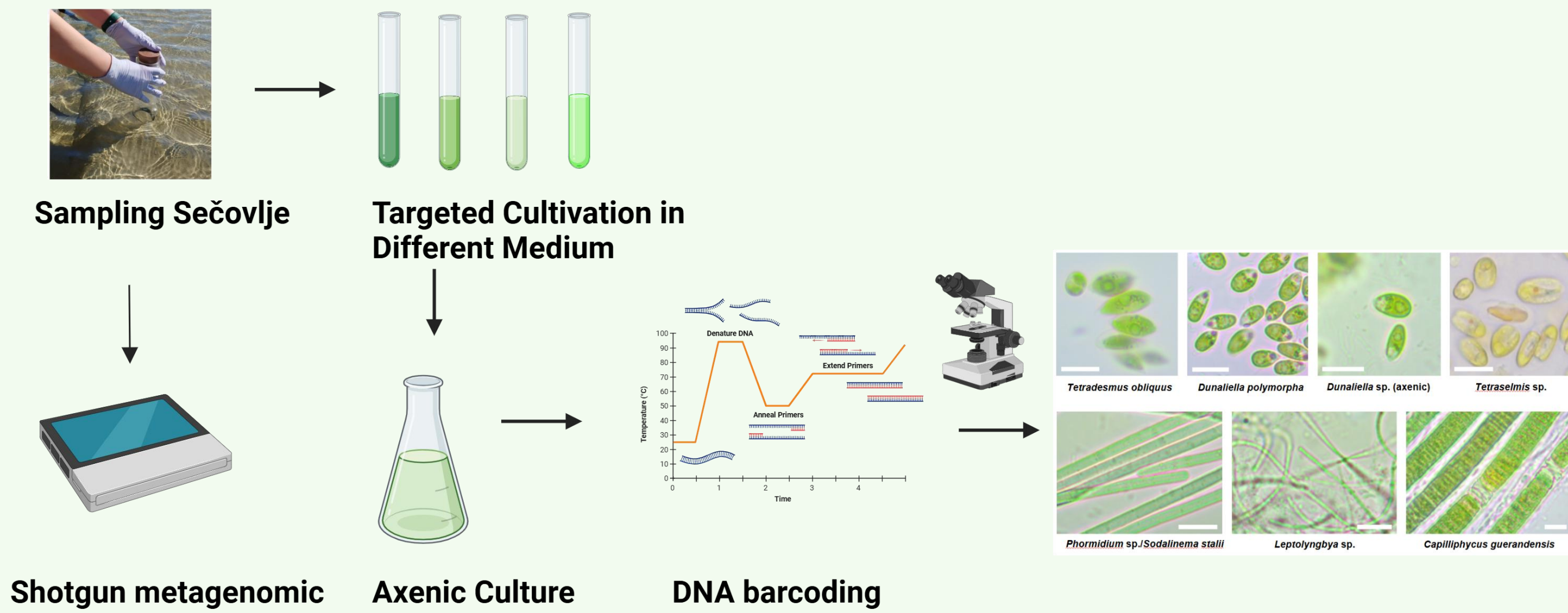


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## INTRODUCTION

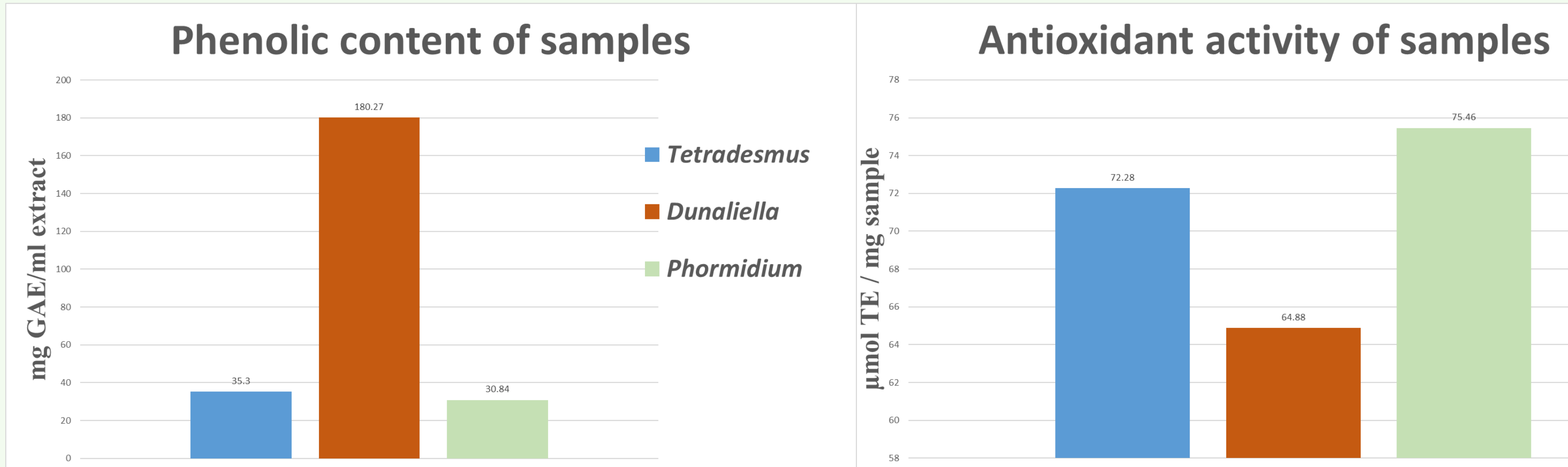
Salt pans are extreme environments characterized by high salinity, harboring a unique and largely untapped microbial biodiversity. The microorganisms inhabiting these niches have evolved specific adaptation mechanisms, enabling survival under fluctuating and often harsh conditions (1). These adaptations can result in the production of bioactive compounds with significant biotechnological potential, including antioxidants, UV-protective, and antibacterial activities (2). However, replicating such extreme environments in laboratory conditions remains a challenge, and establishing pure microbial cultures is a time-consuming process (3).

## MATERIALS & METHODS

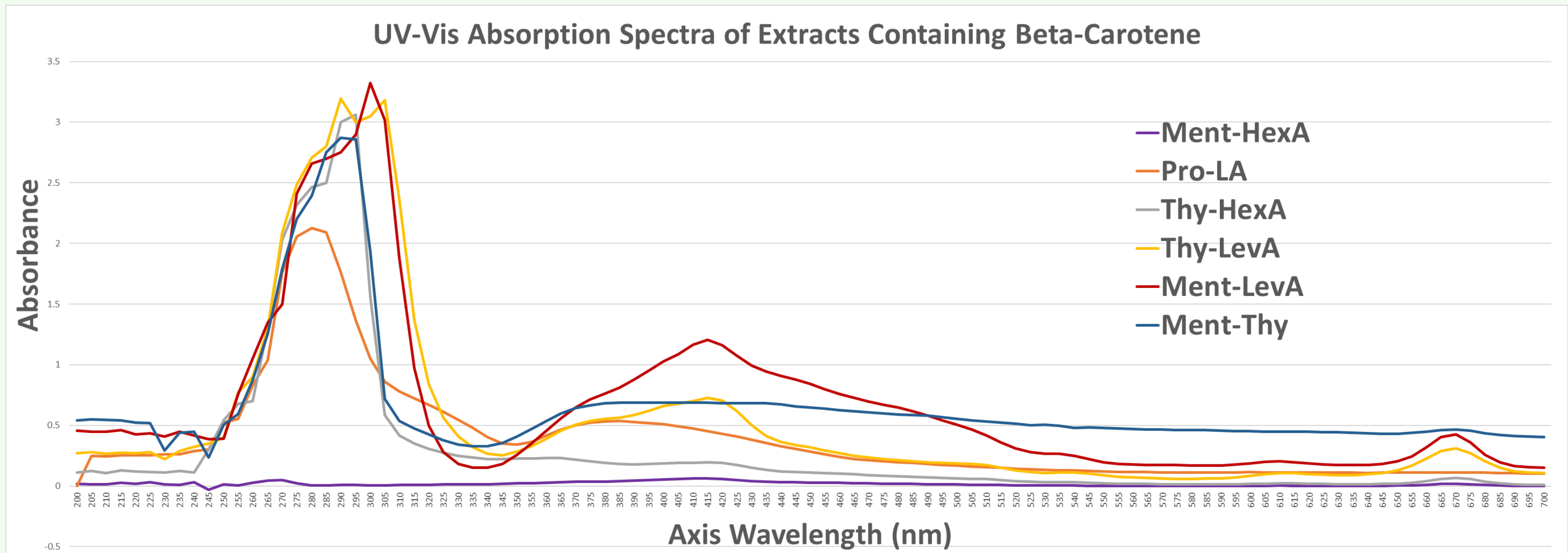


## RESULTS

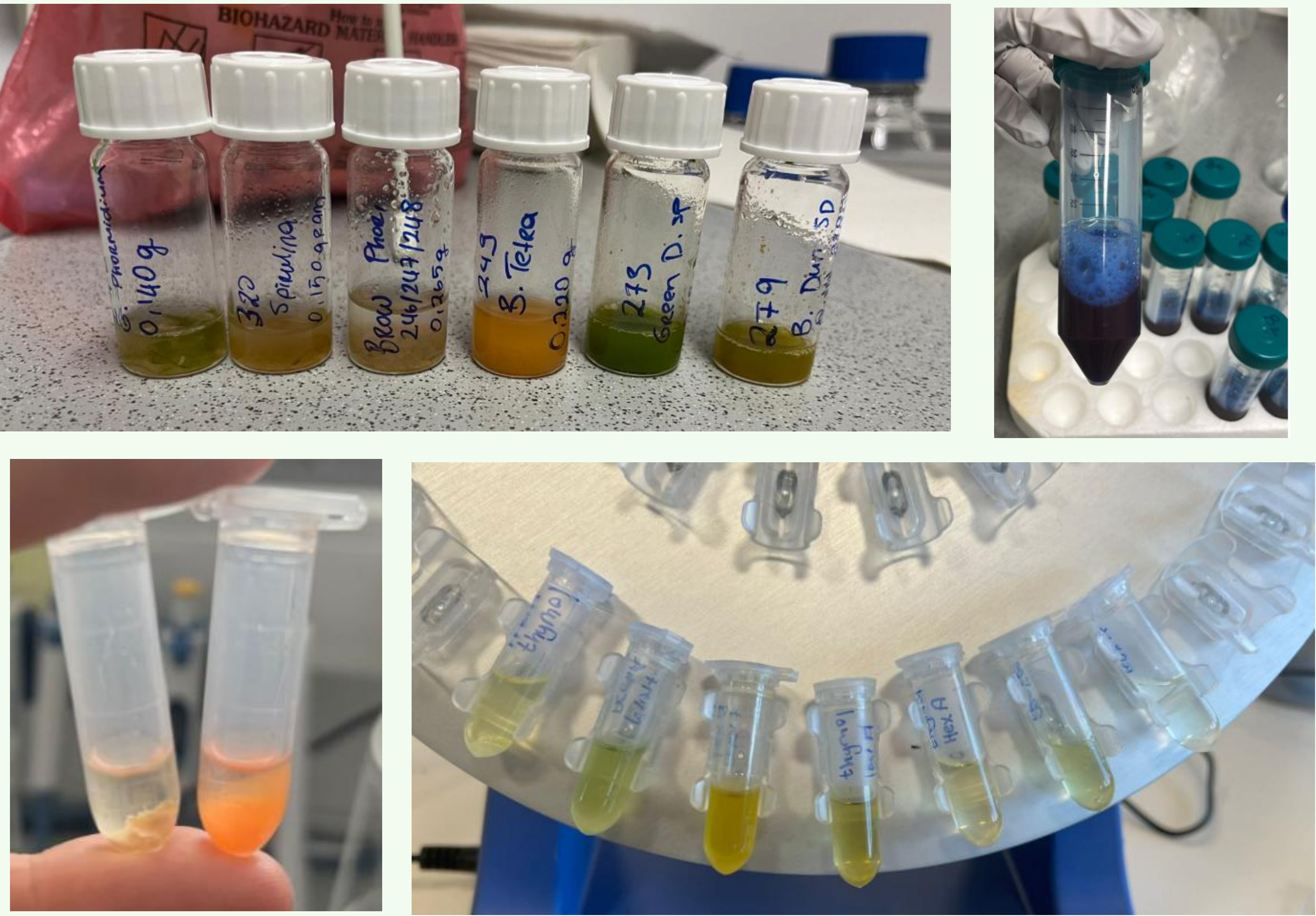
### 1. Phenolic Content and Antioxidant Activity of Microalgae and Cyanobacteria Isolates from



### 2. UV-Vis Absorption Spectra of Extracts Containing Beta-Carotene



### 3. Isolated Pigments



## FUTURE WORK

- Explore the potential as a natural antioxidant source in pharmaceutical and cosmetic applications
- Carry out LC-MS characterization

1. Meier DV, Greve AJ, Chennu A, van Erk MR, Muthukrishnan T, Abed RMM, et al. Limitation of Microbial Processes at Saturation-Level Salinities in a Microbial Mat Covering a Coastal Salt Flat. Appl Environ Microbiol. 2021 Aug 11;87(17):e00698-21.  
2. Bonilla-Rosso G, Peimbert M, Alcaraz LD, Hernández I, Eguiarte LE, Olmedo-Alvarez G, et al. Comparative Metagenomics of Two Microbial Mats at Cuatro Ciénegas Basin II: Community Structure and Composition in Oligotrophic Environments. Astrobiology. 2012 Jul;12(7):659–73.  
3. Wang J, Liu Y, Ma Y, Wang X, Zhang B, Zhang G, et al. Research progress regarding the role of halophilic and halotolerant microorganisms in the eco-environmental sustainability and conservation. J Clean Prod. 2023 Sep 15;418:138054.