

CA20106 - Tomorrow's 'Wheat of The Sea: *Ulva*, A Model for an Innovative Mariculture' STSM Action

STSM project 'Isolation of bioactive compounds from xenic and axenic *Ulva* cultures applied in various bioassay-guided test systems' has been accepted as part of the COST action titled CA20106 - Tomorrow's 'Wheat of The Sea: *Ulva*, A Model for an Innovative Mariculture'.

One of the most important goals of this COST action is to develop an innovative approach to reveal *Ulva spp.*'s economic potential and to explore commercial applications in the fields of human food and medicine.

The first step of the project, which basically consists of two phases, includes the cultivation, extraction and metabolomic analysis of axenic and xenic *Ulva mutabilis* cultures in the Dr. Thomas Wichard's laboratory, Friedrich Schiller University, Jena (Germany), and the second step includes the use of the obtained algae extracts for three different bioassays in the Dr. Dilek Unal's laboratory, Bilecik Şeyh Edebali University (Turkey). Three bioassays to be tested in Dr. Dilek Unal's laboratory were aimed to determine the effects of *U. mutabilis* extracts on probiotic bacteria, to determine their effects on Acetylcholine esterase enzyme kinetic properties and to determine their effects on plant growth.

Within the scope of STSM, the Jena University, Germany step was successfully completed. In addition, bioassay studies are continuing in Turkey.

In summary, according to the datas obtained:

- Temperature changes caused changes in the metabolite profile of *U. mutabilis*'s thallus (triad: *Ulva-Roseovarius-Maribacter*).
- Temperature changes caused changes in the length of *U. mutabilis*'s thallus.
- Low growth temperature increases total antioxidant content in *U. mutabilis*.
- The change of metabolite profile due to the temperature shift experiment do not influence the viability of probiotic bacteria. Temperature changes influence the metabolite profiling of *Ulva*'s thallus (tripartite community: *Ulva-Roseovarius-Maribacter*).

It is still a question mark from which metabolites the differences between the groups arise specifically. In line with the results of the ongoing bioassay studies in Turkey, the metabolomic analyzes performed in Wichard's lab will be expanded and the datas will be analysed more detailed.