

ABACUS- Algae for the production of added value compounds.

Michael Ross, Ben Wright, **Michele Stanley**

Michele.Stanley@sams.ac.uk

Scottish Association for Marine Science, Scottish Marine Institute, Oban, United Kingdom.

Alternative strategies are increasingly being explored for the production of both bulk commodities and high value metabolites. Amongst the less conventional “production platforms” are microalgae and macroalgae. These are increasingly being considered as an alternative to conventional land-based crops for uses in human and animal nutritional markets, as well as for the production of speciality metabolites. There are clear advantages to using both over “higher” plants, and these include: their very high growth rates, their capacity to utilize a large fraction of the solar energy (in theory 10% of the total solar energy can be fixed into biomass) and their ability to grow in conditions that are not suitable for terrestrial biomass growth. Furthermore, many algae and most other aquatic microbes are heterotrophs/capable of heterotrophic growth and at least in theory should be amenable to *ex situ* cultivation, with the possibility of up-scaling to industrial-scale mass culture employing conventional fermentation/ chemical engineering approaches. The ABACUS project is targeting the development of new algae-based value chains, thereby bringing to the market innovative ingredients for high-end applications, spanning from terpenes for fragrances to long-chain terpenoids (carotenoids) for nutraceuticals and cosmetics