ABACUS – BBI: a joint European initiative to foster algae as a biomass applied to the production of added value compounds

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Algae production in Europe is currently limited to a few small industries, mainly for the feed, nutrition and cosmetic sectors. This sector is ripe for further expansion. However, creating an economically viable and sustainable method of growing large quantities of algae and converting them into successful commercial products that the markets accept remains a challenge.

The commercialization of high value compounds sourced from microalgae could grow the existing industry considerably, while product innovation based on new molecular targets and clever biorefinery schemes could open new markets.

Started up in May 2017, the ABACUS project is a 3-year collaborative initiative funded by H2020 BBI JU. It gathers 2 large industries, 3 algae SMEs and 4 RTOs. It aims at a business-oriented and technology-driven development of a new algal biorefinery, thereby bringing to the market competitive and innovative algae-based ingredients for high-end applications, spanning from algal terpenes for fragrances to long-chain terpenoids (carotenoids) for nutraceuticals and cosmetic actives.

The concept of ABACUS associates several interdisciplinary approaches in order to support a high-value product market development stemming from:

- Selection and biological engineering of microalgal strains and oriented photosynthesis of terpenoids;
- Technological development of algae biomass production systems to optimize cultivation and photosynthesis of terpenoids;
- Technological development of the downstream processing steps to reduce time and costs, and to optimize environmental acceptability;
- Market development based on new algae-derived ingredients and structuration of new biobased value chains.