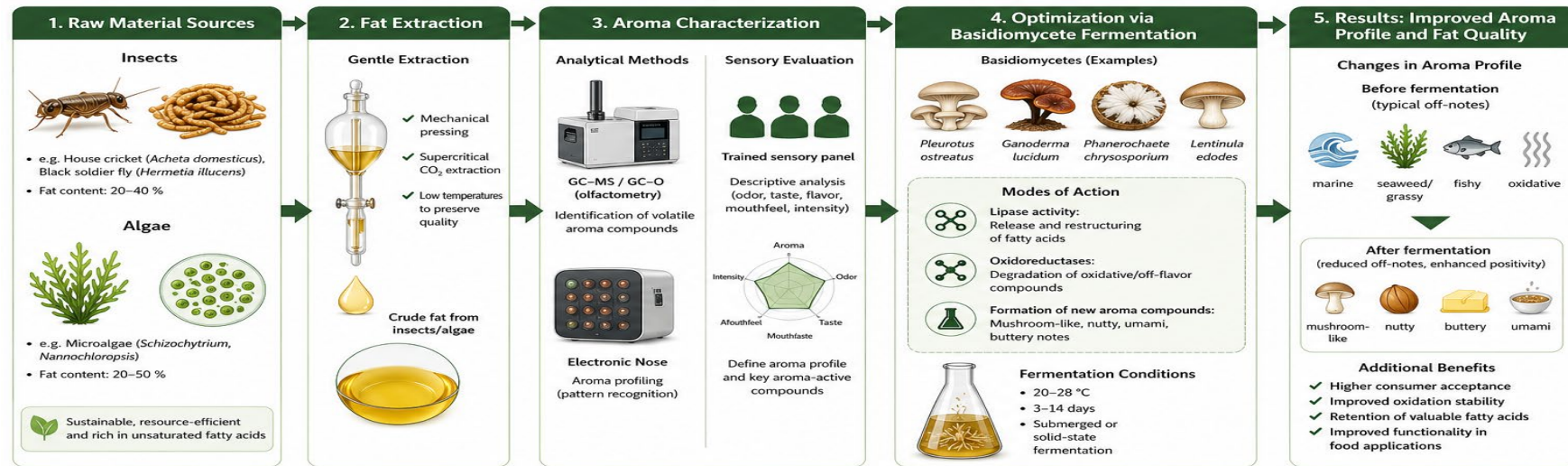




Bachelor thesis –project work – Master thesis – student assistant

Aroma characterization and aroma optimization of alternative fats from insects and algae

The aroma characterization and optimization of alternative fats from insects and algae is gaining increasing importance, as these raw materials are considered a sustainable alternative to conventional animal and vegetable fats. Besides technological and nutritional properties, the sensory profile plays a key role in consumer acceptance. Depending on the species, feed, and processing, insect fats often exhibit nutty, roasted, buttery, or earthy notes. Algal fats, on the other hand, often possess marine, grassy, algal, or oxidatively fishy aromas, which arise primarily from unsaturated fatty acids and their breakdown products. These aroma profiles can be specifically investigated using modern analytical techniques such as gas chromatography-mass spectrometry (GC-MS) and sensory testing methods. A promising approach for optimization is fermentation with basidiomycetes, i.e., club fungi such as edible mushrooms or noble molds. These microorganisms possess a broad spectrum of enzymes with which they can modify lipids and break down or synthesize odor-active compounds. This allows for the reduction of undesirable marine, bitter, or oxidative notes while simultaneously creating pleasant mushroomy, nutty, umami, or buttery aromas. Additionally, fermentation processes can improve oxidative stability and positively influence the functional properties of the fats.



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