Towards Plant Enzyme based Oleochemistry through Phytomining

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Abstract

Human history is closely linked to the use of plants as valueable sources for nutrition, commodities, energy as well as a multitude of raw materials, such as fats, oils and natural polymers like cellulose or starch. However, only recently have we come to see plants as a cornerstone of sustainable industry by exploiting lead structures and biosynthetic pathways for the modification of plant derived, renewable resources.

Plant oils are already used by the Chemical Industry as renewable feedstock and unsaturated fatty acids (UFAs), often found in plant oils, represent well suited raw materials for numerous products such as polymers, plasticizer and lubricants. Doubtlessly, the wealth of plant biosynthetic pathways makes plants an attractive source for fascinating new enzymes for oil and fatty acid modification and other biotechnological applications. Use of plant enzyme and compounds in industrial biotechnology offers new means to address/reach energy savings and increases of efficiency and sustainability by reducing the number of steps in processing chains, for example.

Phytowelt GreenTechnologies GmbH excels enzyme discovery via phytomining, a knowledge based combinatory high content approach. Our four step integrative approach aims to increase the efficiency of current production processes, e.g. by complementing microbial production lines with a suitable gene, or implementing completely new and innovative fermentation processes. Phytowelt's approach unlocks the huge potential of plant biodiversity for our clients. Phytowelt's presentation will introduce its phytomining platform and the power of (plant) enzymes. Several examples for the application of plant enzymes will be given.