

From oilseeds to industrial products: present and next future of oleochemistry

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Abstract

A short review of the complete chain from seed to final industrial oils and derivatives, through the intermediate steps of crushing, refining, fractionation, splitting, transesterification or esterification is shown. The main scope of the first part of this presentation is the comprehension of different unit operations and of the different actors operating within the complete chain from field to end-user. Which is the best oil for industrial purposes? Probably this is a wrong question. The common answer: oil must be cheap, crop must be cultivated easily in very good yield and everywhere, it must be liquid down to $-50\text{ }^{\circ}\text{C}$, available in huge amounts, insensitive to oxidative, hydrolytic and thermal degradation, but readily biodegradable and fully recyclable. This product exists only in our dreams and, as usual, we must find compromise solutions looking at the needed properties for a specific final use. The interactions between feedstock composition and foreseen properties of final product will be discussed along with the quality aspects of finished products. Sometimes a good idea was damaged by a bad realisation or by an under evaluation of quality issues. Finally some perspective for research and development activity will be presented, paying particular attention at the problem of glycerol market, at new fatty acids derivatives, at the problems related to standardisation of products and at a proper recycling procedure for used products.