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EDITORIAL

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Sir,

The twenty-first century is a transition era between petroleum-based and bio-based products. The oil reserves depression and the environmental issues triggered the warning light for more sustainable industries and processes. Within this era of use of renewable resources and development of greener and more safety processes, biocatalysts emerged as a real alternative for several industrial sectors, formerly chemicals. Even though enzymatic processes are widely applied in the food and beverage industry, the discovery of recombinant DNA technology and protein sequencing and engineering allowed the raise of biocatalysts and the increase of enzyme technologies in industrial applications.

The global market of industrial enzymes is projected to reach USD 6.30 Billion by 2022 (MarketsandMarkets 2016). In 2017, Brazilian enzymes´ imports reached USD 165 million, being 12% cellulases, enzymes related to two growing sectors in biocatalysis in Brazil, biofuels and specialty chemicals (Ministério da Indústria 2018).

Brazil is worldwide recognized as an important biofuel producer, being the second largest producer of both bioethanol and biodiesel. The main successful case example of enzyme application in biofuel production is the second-generation ethanol plant of Raízen, initiated in 2014 with installed capacity to produce 42 million litres of ethanol (Raizen 2018). Concerning biodiesel, the North American company Blue Sun Energy started a commercial facility for enzymatic biodiesel production in Brazil, applying lipases (Biodiesel 2018).

The company Olfar, with an annual production of 378 million litres of biodiesel, was the first company in Brazil to implement the enzymatic neutralization in a biodiesel plant (Olfar 2018).

In the specialty chemical sector, several companies are investing in Brazil in research and development of enzymatic processes, reflected by the increasing number of patent applications. Amyris has a patent application in enzymatic methods to produce muconic acid (Schweitzer et al. 2015) (112012016855); Braskem applied to various patents in methods to produce and use dehydratases (Koch et al. 2018) (112017025554), use of a modified acetoacetyl-CoA hydrolase (Slovic et al. 2017) (112016006321), and enzymatic methods to convert alkenes (Prause et al. 2015) (102013029576). Oxiteno has applications to protect the use of an enzymatic pool of hydrolases and an enzymatic process to produce a mixture of esters (Da Silva et al. 2017) (102015030362).

The Brazilian scenario of enzymes and their applications in industry are growing, showing the relevance of researches and discussions about this subject. In this sense, since 1995, the Brazilian Seminar on Enzyme Technology (ENZITEC) has brought together competent researchers in the field successfully disseminating their high impact developments. The 12th edition of ENZITEC, held from July 17 to 20, 2016, in Caxias do Sul, joined under the conference topic "Challenges and innovations in enzymatic processes" 310 participants, being 38% University professors and researchers, 31% graduate students, 26% undergraduate students, and only 5% professionals from industry, demonstrating the need for greater interaction between the academic and business environment.

Some works of the 12th edition of ENZITEC were selected for this special issue:

1. Solid-state fermentation of co-products from palm oil processing: production of lipase and xylanase and effects on chemical composition (Oliveira et al. 2018)
2. Mixture design of starchy substrates hydrolysis by an immobilized glucoamylase from Aspergillus brasiliensis (Almeida et al. 2018)
3. Biotransformation of (+)-carvone and (−)-carvone using human skin fungi: a green method of obtaining fragrances and flavours (dos Santos et al. 2018)
4. Production of recombinant β-galactosidase in bioreactors by fed-batch culture using DO-stat and linear control, authored by de Andrade et al. (2018)
5. Hydrolysis of crambe oil by enzymatic catalysis: an evaluation of the operational conditions (Tavares et al. 2018)
6. Discrimination between rival laccase inhibition models from data sets with one inhibitor concentration using a penalized likelihood analysis and Akaike weights (Pinto et al. 2018)

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