

Eletrocatalise de moléculas orgânicas pequenas: Aspectos de estabilidade, forma e função dos catalisadores

Electrocatalysis of small organic molecules: Aspects involving stability, shape and role of catalysts

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Resumo: The fact that molecules in gaseous phase can be “captured” by a surface is an underlying idea in catalysis and electrocatalysis. Such process, commonly known as adsorption, keeps molecules and/or their fragments over a surface and dramatically increases the chances of successful reactional encounters, besides allowing the emergence of reaction paths that otherwise would be unlikely. The energy of atoms that constitute a surface is a key factor in the ability of a substrate to act as an (electro)catalyst, which means that aspects such as the chemical composition of the surface, the way in which those atoms are assembled, the presence of defects, etc., may impact i) the nature of the species taking place in the reaction; ii) the rate of these processes. However, the same surface energy responsible for the activity of a particular electrocatalyst also gives it structural instability, which ends to change the desired catalytic features over time. In the lecture, some electrochemical reactions involving small organic molecules of academic and technological interest will be discussed in the light of these considerations.

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