

Title: Production of hydroxamic acids by immobilized *Pseudomonas aeruginosa* cells Kinetic analysis in reverse micelles

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Abstract: Intact cells from *Pseudomonas aeruginosa* strain L10 containing amidase were used as biocatalysts both free and immobilized in a reverse micellar system. The apparent kinetic constants for the transamidation reaction in hydroxamic acids synthesis, were determined using substrates such as aliphatic, amino acid and aromatic amides and esters, in both media. In reverse micelles, K-m values decreased 2-7 fold relatively to the free biocatalyst using as substrates acetamide, acrylamide, propionamide and glycylamide ethyl ester. We have concluded that overall the affinity of the biocatalyst to each substrate increases when reactions are performed in the reversed micellar system as opposed to the buffer system. The immobilized biocatalyst in general, exhibits higher stability and faster rates of reactions at lower substrates concentration relatively to the free form, which is advantageous. Additionally, the immobilization revealed to be suitable for obtaining the highest yields of hydroxamic acids derivatives, in some cases higher than 80%. (C) 2013 Elsevier B.V. All rights reserved.

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