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Effect of visible light on catalytic hydrolysis of p-nitrophenyl palmitate by the Pseudomonas cepacia lipase immobilized on sol–gel support

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Abstract This paper demonstrates Pseudomonas cepacia lipase catalyzed hydrolysis of p-nitrophenyl palmitate under irradiation of light with wavelengths of 250–750 nm. The reaction follows Michaelis–Menten Kinetics and the light irradiation increases the overall rate of hydrolysis. Using Lineweaver–Burk plot KM and Vmax values for the reaction in presence of light are found to be 39.07 and 66.67 mM/min/g, respectively; while for the same reaction under dark condition, the values are 7.08 and 10.21 mM/min/g. The linear form of enzyme dependent rate of reaction confirms that no mass-transfer limitations are present and the reaction is a kinetically controlled enzymatic reaction.

Keywords Light irradiation, Hydrolysis, *Pseudomonas cepacia*, p-Nitrophenyl palmitate

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