Physiochemical properties and specificity of mycelium-bound lipase from a locally isolated strain of Aspergillus flavus Link

ABSTRACT

The properties of mycelium-bound lipase of Aspergillus flavus Link obtained after 3 days growth in palm olein were studied. The mycelium-bound lipase has an optimum activity at a temperature range of 50ï 55°C and once extracted, the activity was optimum at a temperature range of 25ï 35 °C. The extracted lipase was stable at alkaline pH and heat labile, thus lost 14% of its activity after being exposed to 30°C for 4 h. Ca2+ enhanced the lipase activity while EDTA (1 mM) had no effect. The enzyme hydrolysed coconut oil faster than other vegetable oils and tributyrin was not hydrolysed by the extracted lipase. The apparent Km values obtained for mycelium-bound lipase (11.76 mg/mL) was three times higher than the extracted lipase (3.92 mg/mL) suggesting that there was a diffusion limitation of the substrate in reaching the bound lipase. The extracted lipase displayed 1,3 positional specificity.

Keyword: Aspergillus flavus; Mycelium-bound lipase; Extracted lipase; Positional specificity