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XLIX SAVETOVANJE SRPSKOG HEMIJSKOG DRUŠTVA

PROGRAM
I
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49th Meeting of the Serbian Chemical Society

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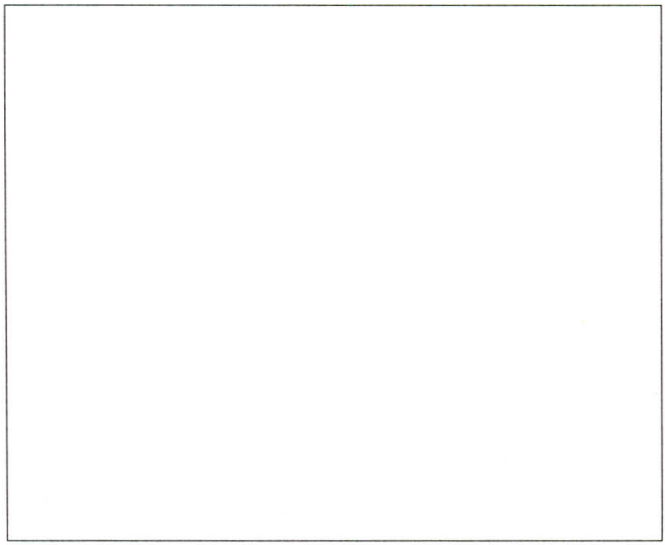

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BT07-P

Ispitivanje potencijala lipaze *Pseudomonas aeruginosa* san-ai za sintezu estara u nevodenoj sredini

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Poslednjih godina povećano je interesovanje za enzimsko dobijanje estara kao alternativa hemijskom postupku. Enzimska kataliza se odvija pod umerenim reakcionim uslovima i omogućava transformacije supstrata koji su osetljivi na ekstremne uslove. Ispitan je biokatalitički potencijal lipaze izolovane iz fermentacione tečnosti *Pseudomonas aeruginosa* san-ai NCAIM (P) B 001380 za sintezu estara. Sve reakcije su izvođene na 30 °C uz mešanje (200 rpm). U sistemu bez rastvarača potvrđena je sinteza metil-estara. Relativni prinosi u reakcijama esterifikacije benzoeve i salicilne kiseline su 90% i 92%, redom, a za sirćetnu, propionsku, kaprilnu i oleinsku kiselinu nakon 24h su 77%, 47%, 33% i 25%, redom. Relativni prinosi za sintezu estara sirćetne kiseline u n-heksanu sa metanolom, etanolom, izopropanolom, holesterolom i mentolom nakon 24h iznose 77%, 73%, 54%, 46%, 79%, 50%, redom. Može se zaključiti da je lipaza efikasan katalizator u reakcijama sinteze estara u nevodenoj sredini. Dalja optimizacija uslova esterifikacije je u toku.

Screening of *Pseudomonas aeruginosa* san ai lipase for ester synthesis potential

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In the last decade interest for enzyme-catalyzed production of esters has increased. One of the advantages of enzyme-catalyzed process (besides the energy saving) are mild conditions which allow transformations of sensitive substrates. Potential of lipase produced by *Pseudomonas aeruginosa* san ai NCAIM (P) B 001380, as biocatalyst for ester synthesis was investigated. All reactions were performed at 30 °C with rotational shaking (200 rpm). Synthesis of methyl esters in solvent free system was confirmed. Relative yields of esterification for benzoic and salicylic acid after 2h were 90% and 92%, respectively; and for: acetic, propanoic, capric and oleic acid after 24h were 77%, 47%, 33% and 25% , respectively. Relative yields for esterification of acetic acid in n-hexane with methanol, ethanol, isopropanol, cholesterol and menthol after 24h were: 77%, 73%, 54%, 46%, 79% and 50%, respectively. It could be concluded that the lipase is efficient biocatalyst for ester synthesis. Further optimization for esterification process is underway.