

New Application of Olive Oil for the Production of Biologically Active Hydroxy Fatty Acids by Microbial Conversion

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Hydroxy fatty acids have gained important attentions because of their special properties such as higher viscosity and reactivity compared with other non-hydroxy fatty acids. The new bacterial isolate *Pseudomonas aeruginosa* (PR3) had been reported to produce mono-, di-, and tri-hydroxy fatty acids from different fatty acids. Of those, 7,10-dihydroxy-8(*E*)-octadecenoic acid (DOD), a highly antibacterial compound, was produced with high yield from oleic acid by PR3. Up to now, the substrates used for microbial HFA production were free fatty acids. Recently, triacylglyceride, specifically triolein was efficiently utilized as a substrate for DOD production by PR3 indicating that vegetable oils containing oleic acid could be used as substrate for HFA production by PR3. In this study we used olive oil containing high content of oleic acid as a substrate for DOD production by PR3. Production yield of DOD under the optimized environmental conditions represented 50% over olive oil.