

Dihydroactinidiolide from thermal degradation of β -carotene

Hazrulrizawati Hamid¹, Suria Kupan¹, Mashitah M. Yusoff¹

¹Faculty of Industrial Sciences & Technology, Universiti Malaysia Pahang, Lebuhraya Tun Razak, 26300 Gambang Kuantan, Pahang, Malaysia

*Author to whom correspondence should be addressed; E-Mail: hazrulrizawati@ump.edu.my

Abstract

The formation of dihydroactinidiolide by thermal degradation of β -carotene was studied. A comparison of yields of dihydroactinidiolide in commercial β -carotene and β -carotene derived from crude palm oil (CPO) was investigated. Thermal degradation of commercial β -carotene promoted the formation of dihydroactinidiolide with the highest yield, 61.21%. Thermal degradation of recovered β -carotene yielded 29.23% of dihydroactinidiolide. The lower recovery of β -carotene was due to the mixture of compounds in the extract. Further investigation indicated some other useful aroma compounds formed from this thermal degradation were β -ionone, 3-oxo- β -ionone and β -cyclocitral. The outcome provided wide opportunities in utilizing crude palm oil (CPO) as natural source of beta-carotene to produce aroma compound.

Keywords: beta-carotene, crude palm oil, dihydroactinidiolide, thermal degradation, aroma compounds, beta-ionone, beta-cyclocitral