Neodictyoprolenol and Dictyoprolenol, the Possible Biosynthetic Intermediates of Dictyopterenes, in the Japanese Brown Algae Dictyopteris

Yuuko Yamamoto, Yoshihiko Akakabe, Kenji Matsui, Hiroshi Shimizu and Tadahiko Kajiwara*

Department of Biological Chemistry, Faculty of Agriculture, Yamaguchi University, Yamaguchi 753–8515, Japan. Fax: +81–839–33–5849. E-mail: kajiwara@agr.yamaguchi-u.ac.jp

* Author for correspondence and reprint requests

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Neodictyoprolenol [(-)-(3S)-(1,5Z,8Z)-undecatrien-3-ol] and dictyoprolenol [(-)-(3S)-(1,5Z,8Z)-undecadien-3-ol], which had been proposed as possible biosynthetic intermediates of the sex pheromones of marine brown algae such as dictyopterene B [(-)-trans-1-((1′E,3′Z)-hexadienyl)-2-vinylcyclopropane], D’ [(+)-6-((1′Z)-butenyl)-1,4-cycloheptadiene] and C’ [(+)-6-butyl-1,4-cycloheptadiene], were again identified in the essential oils from Dictyopteris prolifera, D. latiscula, and in D. undulata, together with the C11-related volatile compounds such as neodictyoprolene, dictyoprolene and dictyopterenes. Incubation of D. prolifera preparation with racemic neodictyoprolenol and dictyoprolenol as substrates showed (S)-enantioselective decreases of the added substrates and increases in dictyopterenes. From these results, a possible pathway to form dictyopterenes is discussed.