

Production of Xanthones with Free Radical Scavenging Properties, Emodin and Sclerotiorin by the Cultured Lichen Mycobionts of *Pyrenula japonica*

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From the cultures of the spore-derived mycobionts of the lichen *Pyrenula japonica*, two new xanthones, 1,8-dihydroxy-3-hydroxymethyl-5-methoxyxanthone and 1,2,8-trihydroxy-5-methoxy-3-methylxanthone, were isolated along with 1,7-dihydroxy-3-methylxanthone, 1,5,8-trihydroxy-3-methylxanthone, 1,8-dihydroxy-5-methoxy-3-methylxanthone, emodin and sclerotiorin. Their structures were determined by spectroscopic methods. Sclerotiorin was isolated for the first time from lichen mycobionts. Radical scavenging activities of the isolated xanthones were also studied.