Characterization of the components present in the active fractions of health gingers (Curcuma xanthorrhiza and Zingiber zerumbet)by HPLC–DAD–ESIMS

ABSTRACT

Curcuma xanthorrhiza and Zingiber zerumbet are two of the most commonly used ingredients in Indo-Malaysian traditional medicines, health supplements and tonics. Recently, a number of products derived from the aqueous extracts of these species have appeared in the market in the form of spray-dried powder packed in sachet or bottle. On-line high performance liquid chromatography, coupled with diode array detection and electrospray ion trap tandem mass spectroscopy (HPLC–DAD–ESI–MSn), was used to analyze the components in the antioxidant-active fractions from the rhizomes of these species. Three components were identified from C. xanthorrhiza, including bisdemethoxycurcumin (1), demethoxycurcumin (2) and curcumin (3). The active fraction from Z. zerumbet consisted of five components, including kaempferol 3-O-rhamnoside (4), compound 5 [kaempferol 3-O-(200-O-acetyl)rhamnoside (5a) or kaempferol 3-O- (300-O-acetyl)rhamnoside (5b)], kaempferol 3-O-(400-O-acetyl)rhamnoside (6), kaempferol 3-O-(300,400-O-diacetyl)rhamnoside (7) and kaempferol 3-O-(200,400-O-diacetyl)rhamnoside (8). To confirm their identities, the components from Z. zerumbet were isolated conventionally and were analyzed by spectroscopic techniques as well as by comparison with literature data.

Keyword: Curcuma xanthorrhiza, Zingiber zerumbet, Traditional medicines, Health supplements, Tonics, Antioxidant activity, LC–DAD–ESIMS