Abstract

Tea plant (*Camellia sinensis* var. assamica), Horsetail plant (*Equisetum debile* Roxb.) and Gac fruit (*Momordica cochinchinnensis* (Lour.) Spreng.) are used as key ingredients in several products from the royal project foundation. Qualities and standardization of their extracts as raw materials, however, need to be established. The aims of this study were to control the quality and to standardize these 3-potential-plant extracts; 1) Fermented tea leaves: the antioxidant activity correlated well with catechin content. It could be used, therefore, as a standard for quality control of the extraction by using HPTLC method with toluene : ethyl acetate : acetone : formic acid (6:6:6:1 %v/v) as a mobile phase. The semi-purified fraction in ethyl acetate (AS-EtOAC) containing 25.78% catechin showed the highest antioxidant activity and could be used as a raw material. 2) Horsetail plant: the semi-purified fraction in ethyl acetate (ER-EtOAC) had the highest anti-tyrosinase activity (IC_{50} = 0.47 mg/ml), while it ranked the second for anti-collagenase activity (MMP-1 IC_{50} = 0.82 mg/ml and MMP-2 IC_{50} = 0.94 mg/ml) as well as for anti-5α-reductase (1 mg of the extract was equivalent to 1.13 mg Finasteride). Polyphenol content analysis could be used as a preliminary control of its quality. Choice of a standard for quality control purpose was subjected to the required biological activities. 3) Gac fruit: the antioxidant activity correlated well with beta-carotene and lycopene content. Therefore, they could be used as standards for quality control of the extraction by using HPTLC method with hexane: ethyl acetate (4:1 %v/v) as a mobile phase. The semi-purified fraction in dichloromethane containing 4.14% beta-carotene and 3.11% lycopene was potential to be used as a raw material. In short, the crude extracts and the semi-purified fractions of fermented tea leaves and horsetail plant were stable when stored at 40°C for 3 months, regarding to their biological activities as well as the content of their major components. Gac fruit samples, however, were not stable as some of their biological activities and the content of their major components were altered. Among the crude extract and the fractions of gac fruit, the semi-purified fraction in ethyl acetate (MC-EtOAc) was the most stable after 3 months of the stability study.