

Discrimination of *Cassia* plants in health tea

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Abstract

A chemical compound that could be used as an indicator to discriminate senna from other *Cassia* plants in health teas was identified and a method was established to verify the suitability of commercial health tea package labels. The results showed one compound in senna that was not degraded even after wet processing. Structural analysis revealed it to be cassiaphenone B-2-glucoside. Then, investigations were conducted to determine whether that compound is ubiquitously present in *Cassia* plants used in the commercial production of health teas. With the exception of *Cassia alata*, cassiaphenone B-2-glucoside is not present in other *Cassia* plants, such as *Cassia obtusifolia*, *Cassia occidentalis*, and *Cassia corymbosa*. From a survey of commercial health teas using cassiaphenone B-2-glucoside as the indicator, some teas were found to contain cassiaphenone B-2-glucoside and were therefore presumed to contain senna or *C. alata*, which was not listed on their package labels.

Keywords : cassiaphenone B-2-glucoside, *Cassia alata*, *Cassia corymbosa*, senna, health tea

I Introduction

The increased health consciousness of consumers in recent years has sparked the emergence of a wide array of health foods on the market. Health teas aimed at weight loss are an example. In some cases, however, health teas have led to such health problems as diarrhea or abdominal pain^{*1, *2} because of the presence of senna (foliole of *Cassia angustifolia* or *Cassia actifolia*), a medicinal product¹⁾. The package labels sometimes differ from the actual contents of health teas, and there are many cases in which customers buy health teas without being aware of the ingredients. Moreover, senna, which can adversely affect health, is becoming more and more difficult to detect every year as its leaves are becoming darker^{1, 2)}. In this regard, it is difficult to regulate health teas containing senna.

There is also an increase in the number of health teas that list *Cassia alata* and *Cassia corymbosa*, which are plants belonging the same *Cassia* genus as senna, on their package labels. Other *Cassia* plants widely used in health tea

production include *Cassia obtusifolia* and *Cassia occidentalis*, but these plants are reported to not contain sennoside A (SA) and sennoside B (SB). Caution is needed as it is reported that SA and SB are detected from non-pharmaceutical *C. alata* at levels equivalent to those in senna³⁾. Clearly, the morphological differentiation of senna, *C. alata*, and *C. corymbosa* is necessary³⁾, but as these plants are not commercially available, they are difficult to procure and thus comparative identification is not a simple task.

Because of these problems, we looked for an indicator compound that could be used to differentiate senna from other *Cassia* plants, in order to establish a method to investigate whether or not there is an agreement between product labels and the actual contents of the products themselves. There are reports of the chemical compounds in senna and *C. alata*⁴⁻⁷⁾, but many of them deal with compounds commonly found in *Cassia* plants, such as anthraquinones, and no reports on compounds unique to senna have appeared so far. In the present study, one chemical compound in senna was

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*1 The Ministry of Health, Labour and Welfare. "Health hazard information and non-approved or unauthorized pharmaceuticals."
<<http://www.mhlw.go.jp/kinkyu/diet/other/030319-1.html>>.

*2 Reports of The National Consumer Affairs Center of Japan. (Sep. 2005) "Health food proclaiming weight loss effect".