

ヨヒンビン及びその立体異性体の分離検出条件の検討 及び市販健康食品中の含有実態

(2016年6月9日受付)

(2016年11月25日受理)

高橋美津子^{a)}、桜井克巳^{a)}、菅谷なえ子^{a)}、刈込高子^{a)}、斉藤貢一^{b)}

a) 横浜市衛生研究所

b) 星薬科大学薬品分析化学教室

Study of separation and detection conditions for yohimbine and its stereoisomers, and their actual contents in commercial health foods

(Received June 9, 2016)

(Accepted November 25, 2016)

Mitsuko Takahashi^{a)}, Katsumi Sakurai^{a)}, Naeko Sugaya^{a)}, Takako Karikomi^{a)}, Koichi Saito^{b)}

a) Yokohama City Institute of Public Health

b) Department of Analytical Chemistry, Faculty of Pharmaceutical Sciences, Hoshi University

Abstract

To verify the presence of yohimbine and its four stereoisomers (corynanthine, α -yohimbine, β -yohimbine, and isorauhimbine) in health food and to perform a quantitative analysis, we examined the separation and detection conditions for each component by GC-MS and LC-UV-MS. As a result, in GC-MS analysis, baseline separation of all five components (yohimbine and its four stereoisomers) was achieved with a mid-polar column. However, the presence of a water desorption peak due to heating, calibration curves with poor linearity, and low recovery rates suggested that the use of GC-MS for quantitative analysis required further consideration. On the other hand, in LC-UV-MS analysis, baseline separation of all the five components was possible when a mixture of ammonium bicarbonate buffer and acetonitrile was used as the mobile phase. In addition, calibration curves showed adequate linearity with good recovery rates. On the basis of these results, we decided to employ the analytical condition by LC-UV-MS. Using this method, we analyzed commercial health food to determine the actual contents of yohimbine and its stereoisomers, and identified food products in which only yohimbine was detected, as well as those in which yohimbine and its four stereoisomers were detected. Furthermore, we found at a high frequency food products in which corynanthine and α -yohimbine were detected at higher concentrations than yohimbine.

Keywords : ヨヒンビン、コリナンチン、 α -ヨヒンビン、ヨヒンビン異性体、一斉分析
yohimbine, corynanthine, α -yohimbine, yohimbine stereoisomers, simultaneous analysis

I 緒言

近年、健康食品の需要は年々増加の傾向にあり、市場に数多く流通している。健康食品は一般の食品と同様に販売されているが^{*1}、それらの中には、違法に医薬品成分を含む“い

わゆる健康食品”が混在しているため問題となっている。また、このような製品には、痩身や滋養強壮などを標榜するものが多い。このような現状の中、いわゆる健康食品が原因と疑われる健康被害事例が発生している^{*2-4}。これらの事例の一つとして、いわゆる健康食品中に医薬品成分ヨヒンビンが含ま

連絡先：〒236-0051 横浜市金沢区富岡東 2-7-1 横浜市衛生研究所 高橋美津子

Corresponding author: Mitsuko Takahashi, Yokohama City Institute of Public Health,

2-7-1, Tomiokahigashi, Kanazawa-ku, Yokohama 236-0051, Japan

*1 厚生労働省、第1回「健康食品」制度のあり方に関する検討会資料 <http://www.mhlw.go.jp/shingi/2003/04/s0423-6b2.html>(2009-5-11)

*2 厚生労働省、中国製ダイエット用健康食品(未承認医薬品)による健康被害事例等 <http://www.mhlw.go.jp/houdou/2002/07/h0719-3.html>(2009-5-11)

*3 厚生労働省、健康被害情報・無承認無許可医薬品情報 http://www.mhlw.go.jp/stf/seisakunitsuite/bunya/kenkou_iryuu/shokuhin/daietto/index.html

*4 厚生労働省、強壮目的で使用される医薬品成分が検出された製品について <http://www.mhlw.go.jp/kinkyu/diet/other/060119-1.html>