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

To verify the presence of yohimbine and its four stereoisomers (corynanthine, α-yohimbine, β-yohimbine, and isorauhimine) 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: 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、それらの内には、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、瘦身や抗老行動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 "*1*2*3*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ビンビンが含まれ