Pinellia ternata (Thunb.) Breit. 98

98.1 Introduction

Banxia, Rhizoma Pinelliae, is the dry tubers of *Pinellia ternata* (Thunb.) Breit. (Araceae) collected in the summer and fall. It is officially listed in the Chinese Pharmacopoeia and used in traditional Chinese medicine as an antiemetic, mucolytic, and antiasthmatic.

98.2 Chemical Constituents

The tuber of *P. ternata* has a pungent taste. An irritating glycoside was isolated and found to be composed of 3,4-dihydroxybenzaldehyde and D-glucose. The aglycone had a strong acrid taste [1]. The alkaloid ephedrine hydrochloride was isolated at a yield of 0.002% as an active principle of the *Pinellia* tuber [2]. Pinellin, a crystalline plant protein isolated from the *Pinellia* tubers, was found to have a low cystein content and a relatively low molecular weight of 10 500 and did not contain hexose [3]. A trypsin inhibitor was also isolated from the tubers. It inhibited trypsin, but not chymotrypsin, kallikrein, or papain, and was estimated to have a molecular weight of 40 800 [4]. In addition to the constituents described above, palmitic acid, stearic acid, 6,7-dihydroxystearic acid [5], β-sitosterol [6], β-sitosteryl-D-glucoside [7], and choline [6] were detected in the root. The amino acids aspartic acid, glutamic acid, arginine, and β-aminobutyric acid were also isolated and identified from *Pinellia* tuber [8].

Pinellia pedatisecta is a herbal drug used in folk medicine in China. The tubers are used as an antiarrhythmic. A number of cyclodipeptide alkaloids with a piperazinedione structure were isolated from the tuber of *P. pedatisecta*. They were identified as L-alanyl-L-valine anhydride (*98-1*), L-analyl-L-leucine anhydride (*98-2*), L-alanyl-L-isoleucine anhydride (*98-3*), L-alanyl-L-phenylalanine anhydride (*98-4*), L-valyl-L-valine anhydride (*98-5*), L-valyl-L-α-amino-β,β-dimethylbutyric acid anhydride (*98-6*), L-valyl-L-leucine anhydride (*98-7*), L-valyl-L-tyrosine anhydride (*98-8*), L-leucyl-L-tyrosine anhydride (*98-9*), L-prolyl-glycine anhydride (*98-10*), and L-prolyl-L-proline anhydride (*98-11*) [9–11].