

CHAPTER IV

DISCUSSION

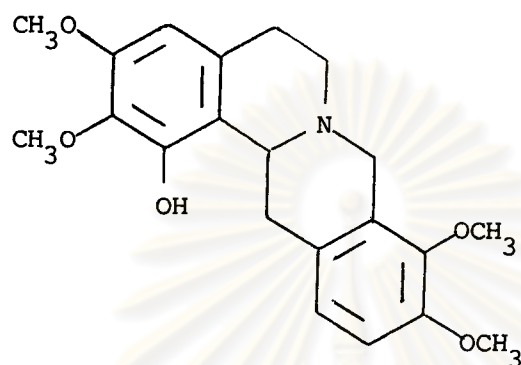
The genus *Stephania* has been investigated for the chemical constituents since 1925. Among twenty five species of the genus *Stephania*, over one hundred and forty four alkaloids were isolated and identified. These plants are known to contain alkaloids in various parts such as leaves, stems and roots. Most of the alkaloids are isoquinolines.

There is no previous reports on the chemical constituents of *Stephania glabra* (Roxb.) Miers growing in Thailand. Most of works on this plant from Indian or Russian origins are reported.

The present work has led to the isolation of three isoquinoline alkaloids of tetrahydroprotoberberine type and they were identified as 1-capaurine, 1-tetrahydropalmatine and 1-xylopinine by comparison of the ultraviolet, infrared, nuclear magnetic resonance and mass spectra (Kametani *et al.*, 1968; Patra *et al.*, 1980; Patra *et al.*, unpublished at this time).

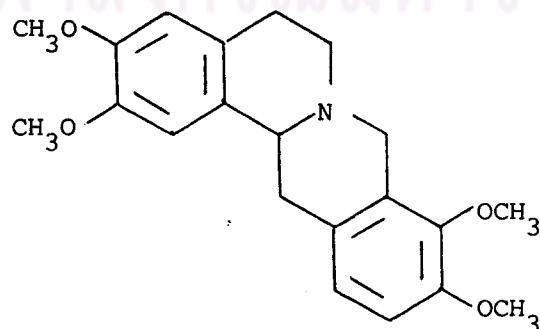
1-Capaurine was isolated as a minor alkaloid, mp. 145°C, $[\alpha]_D^{24} -259.8^\circ$ (in CHCl_3). The elemental analysis and mass spectrum established the formula as $\text{C}_{21}\text{H}_{25}\text{NO}_5$. The UV and Mass spectra show that it is a tetrahydroprotoberberine alkaloid. The infrared

spectrum (IR)(in CHCl_3) showed an alcoholic hydroxyl group at 3520 cm^{-1} . The nuclear magnetic resonance spectrum showed the presence of four methoxyl groups, substituted at the positions 2,3,9 and 10 respectively.



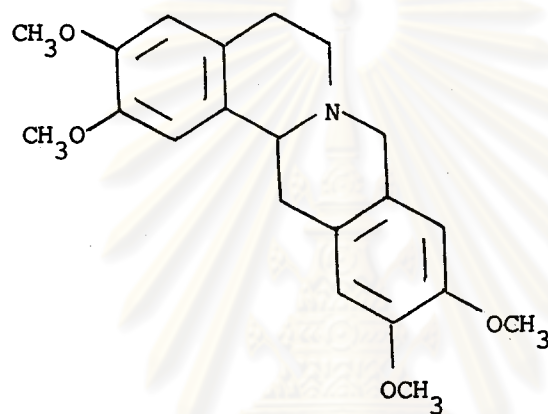
1-Capaurine

1-Tetrahydropalmatine was isolated as a major alkaloid, mp. $148-149^\circ\text{C}$, $[\alpha]_D^{24} -294.2^\circ$ (in CHCl_3). The elemental analysis and mass spectrum established the formula as $\text{C}_{21}\text{H}_{25}\text{NO}_4$. The UV and Mass spectra show that it is a tetrahydroprotoberberine alkaloid. The nuclear magnetic resonance spectrum showed the present of four methoxyl groups substituted at the positions 2,3,9 and 10 respectively.



1-Tetrahydropalmatine

l-Xylopinine was also isolated as a minor alkaloid, mp. 175°C, $[\alpha]_{\text{D}}^{24} -298.0^{\circ}$ (in CHCl_3). The elemental analysis and mass spectrum established the formula as $\text{C}_{21}\text{H}_{25}\text{NO}_4$. The UV and Mass spectra show that it is also a tetrahydroprotoberberine alkaloid. The nuclear magnetic resonance spectrum showed the presence of four methoxyl groups substituted at the position of 2,3,10 and 11 respectively.



l-Xylopinine

ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย