CHAPTER V

CONCLUSIONS

Micromelum minutum Wight & Arn., A member of the Rutaceae family, has been used as the folk medicine in the Southern part of Thailand for many purposed such as fever, anthelmintic and dermatological etc.

The chemical constituents of the leave of this plant have been previously reported, containing a pyranoquinoline alkaloid flindersine (3) and four coumarins micropubescin (44), osthol (44), micromelin (44), microminutin (3) and from the stem bark, there are phebalosin (2), micromelin (2), minumicrolin (48) and murrangatin (48).

In this study, three compounds were isolated from the root bark of this plant. There are osthol (3.24%), micromelin (1.83%), and murrangatin (0.02%). All of the isolated compounds were characterized by using physical and chemical method. In additional, compound I and II were assigned by high resolution NMR; COSY, NOESY, DEPT-90 and DEPT-135.

Ther was no report about the experimental techniques in ^{13}C-NMR especially 2D NMR of the compounds that were isolated from this plant before. This work was to assign the chemical shift of carbons in the compounds by off-resonance, DEPT-90, and DEPT-135 and confirmed by H-H COSY, one bond C-H COSY and long range C-H COSY. The position of the substituents is most easily demonstrated by the NOESY spectrum. Such as osthol, this shows the close approach of proton pair H-4 & H-5 and also H-6 to the methoxy group. This confirms the two substiuents must be on carbons 7 & 8 with the methoxy group on carbon 7. Some signals that have similar chemical environment, the chemical shift may be reversed. This could be solved by the NOESY spectrum such as the assignment of the position Z or E-butene side chain of osthol. For the stereochemistry of compound II, the epoxide group, the methyl group and the neighbouring proton in both isomers were more or less in the same place with respect to the rest of the molecule. So there is not any reliable evidence in any of the spectra to show the stereochemistry of the epoxide group. On the basis of IR, ^{1}-NMR and ^{13}C-NMR data compound III may be murrangatin. It could not be exactly identified. It would be needed more information, especial the data of 2D-NMR.