

CHAPTER IV

CONCLUSION

In this course of research, the roots of *Harrisonia perforata* Merr. (Khontha) was selected for investigation of their chemical constituents. Nine compounds were isolated from them. Only one compound was separated from the methanol crude extract (Fraction Ia and Ib) as a novel compound called "2-hydroxymethyl-3-methylalloptaeroxylin". The other eight compounds were separated from the hexane extracts and chloroform extracts. Four compounds were elucidated as a mixture of steroids (β -sitosterol, campesterol and stigmasterol), heteropeucenin-7-methyl ether, lupeol and a mixture of steroidal glycosides (β -sitosteryl-3-O-glucopyranoside, stigmasteryl-3-O-glucopyranoside and chloresteryl-3-O-glucopyranoside) from hexane crude extract (Fraction IIa and IIb). The other four compounds were separated from the chloroform crude extracts (Fraction IIIa and IIIb) and elucidated as unsubstituted coumarin, 5-hydroxy-6,7-dimethoxycoumarin, saturated long chain aliphatic alcohol and perforatic acid.

The water layer extract was found some of sugars : glucose, sucrose, xylose and maltose. Inorganic salts composed of potassium (K) chlorine (Cl) and sulfur (S) as major components and aluminium (Al), magnesium (Mg), sodium (Na), phosphorus (P), calcium (Ca), iron (Fe), zinc (Zn), copper (Cu), manganese (Mn), nickel (Ni) and bromine as

minor components. Besides amino acid : aspartic, threonine, serine, proline, glycine, alanine and valine.

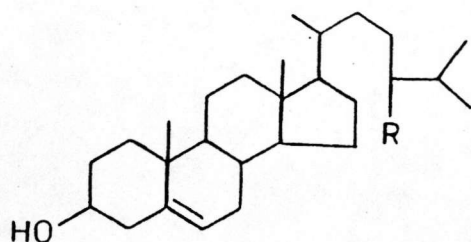
In this research two different extraction methods were used, one by soaking and the other by soxhlet extraction. The results revealed that the compounds separated from the two different methods were identical. However, the quantity of each compound from the soaking extraction was higher than that obtained from the soxhlet extraction. The quantities obtained from two methods and the structure of the compounds are illustrated in Table 4.1 and Figure 56, respectively.

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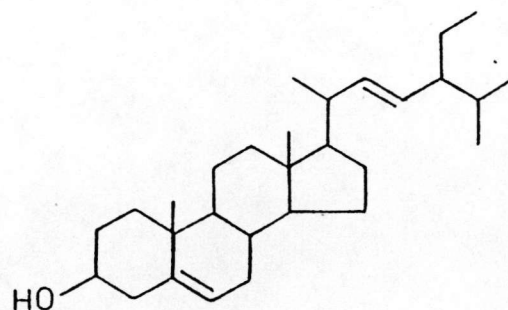
Table 4.1 The quantities comparable of two different methods of extraction.

Compound	Method	
	soaking	soxhlet
1	80 mg.	60 mg.
2	3.60 g.	2.92 g.
3	0.96 g.	0.88 g.
4	0.38 g.	0.25 g.
5	0.32 g.	0.17 g.
6	120 mg.	42 mg.
7	54 mg.	38 mg.
8	45 mg.	32 mg.
9	24 mg.	13 mg.

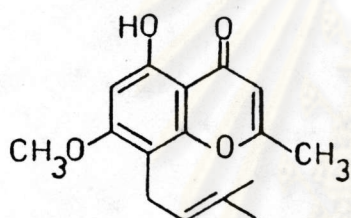
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R=Et , β -sitosterol

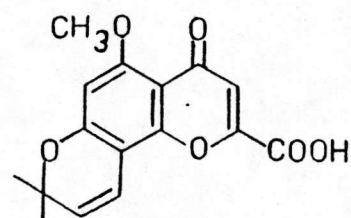
R=Me , campesterol



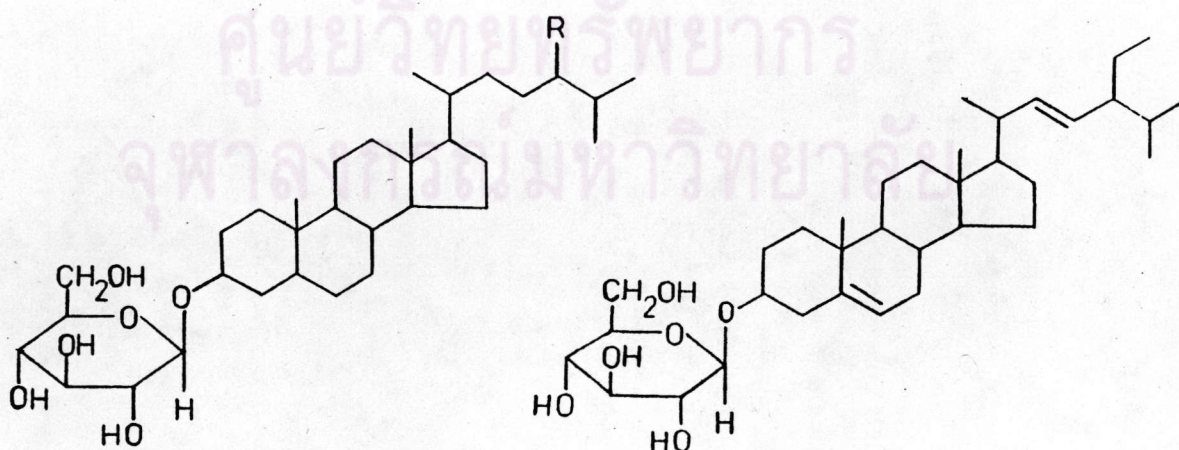
stigmasterol



heteropeucenin-7-methyl ether



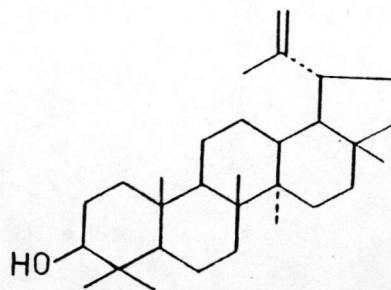
perforatic acid



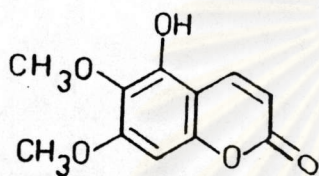
R=H chloresteryl-3-O-glucopyranoside stigmasterol-3-O-glucopyranoside

R=Et β -sitosteryl-3-O-glucopyranoside

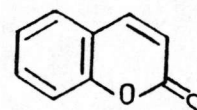
Figure 56 The structure of the compounds isolated from roots of *Harrisonia perforata* Merr.



lupeol



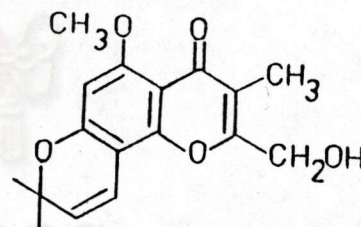
5-hydroxy-6,7-dimethoxy coumarin



coumarin



saturated long chain aliphatic alcohol



2-hydroxymethyl-3-methylalloptaeroxylin

Figure 56 The structure of the compounds isolated from roots of *Harrisonia perforata* Merr.

It could be concluded that the roots of *Harrisonia perforata* Merr. consist of several active compounds. Therefore, the study of chemical constituents of mangrove plants is one of the most worth considers for natural product chemists.



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