CHAPTER I

INTRODUCTION

Botanical Aspects:

Randia siamensis Craib, in a family of Rubiaceae under the Randia genus, has its common names of Khud Khao, Khed Khao and Jee Khao in Thai. According to the "Forest Flora of British Burma"[1], Randia siamensis has erect shrubs which characterize this plant as bend thorns. Its flowers are terminal or axiallary. It has corolla tube with a ring of hairs. There are 5 lobes, 5 stamens which are inserted at apex of corolla tube. The filament is absent but its anther linear is lanceolate with 2 cells ovary and cylindric style. The fruit has 2 cells burry. The leaves are opposite penninerved stipules and interpetiolar.

There are some other species in the Randia genus, such as R. canthioidies, R.dumetorum, R.malabalica, R.oligonosa, R.tetrasperma etc. The species under this study, R.siamensis is one of the genuine plants in Thailand. It can be found in all parts of Thailand especially in the area where the humidity is high.

Chemical and Pharmacological Studies.

To the best of our knowledge, there are no reports on pharmacological and chemical studies of R. siamensis. In Thailand, all parts of this plant have been used as a folklore medicine, such as its root and fruit have been used for inducing abortion, its stem being used for controlling blood pressure and anti scurvy, the flowers have

been used for stopping nosebleed[2].

Although there is no report in literature on pharmacological and chemical investigation of R. siamensis, the results of the pharmacological tests[3] done at the Faculty of Pharmaceutical sciences of Chulalongkorn University indicated that the crude ethanolic extract has an inducing abortion activity. Positive results of the pharmacological studies prompted us to undertake the research on chemical constituents of the root of R. siamensis.

Chemical studies of many other species of Randia genus have been proved the presence of unsaturated triterpenoid sapogenins as well as triterpenoid acids for example oleanolic acid or randialic acid. Commonly occurring steroids such as β-sitosterol and stigmasterol have also been isolated.

Lists of compounds found in various plants of Randia genus are shown in Table 1 and 2.

Table 1 Steroids found in Randia genus.

Species	Parts	Compounds
R. canthioides[4,5]	stem, leaf	β-Sitosterol
		Stigmasterol
R. sinensis[4]	stem, leaf	β-Sitosterol
		Stigmasterol
R. spinosa[6]	stem	β-Sitosterol
		Stigmasterol

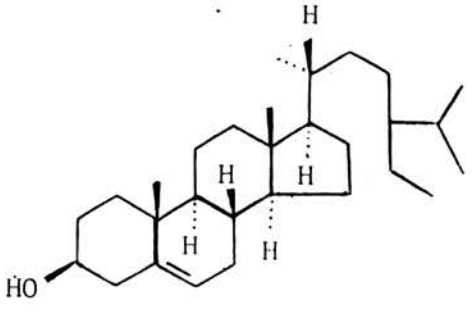
Table 1 Cont.

Species	Parts	Compounds
R. tetrasperma[7]	stem	β-Sitosterol.

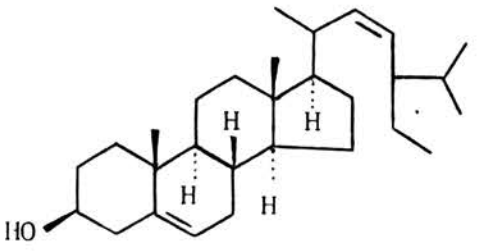
Table 2 Triterpenoid sapogenins and free acids found in Randia genus.

Species	Parts	Compounds
R. brandisii[8]	fruit	Oleanolic acid
R. canthioides[9]	leaf	Cincholic acid
R. dumetorum[10]	bark	Randialic acid A
		Randialic acid B
	fruit	Oleanolic acid
R. oligonosa[11]	fruit	Oleanolic acid
R. sinensis[4]	stem	Mesembryanthemoi-
		-digenic acid
R. spinosa[6]	all parts	Spinosic acid A
		Spinosic acid B
R. tetrasperma[7]		Randialic acid A
		Randialic acid B

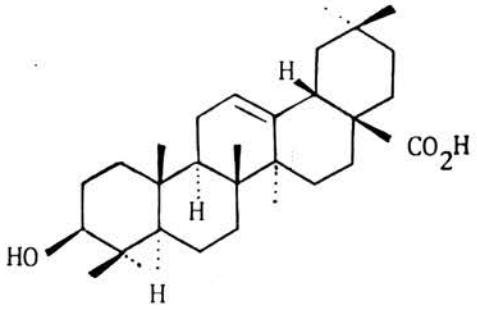
The structures of the above steroids, triterpenoid sapogenins and free acids are shown below.



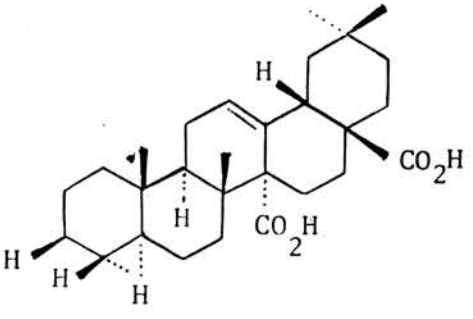
β-Sitosterol



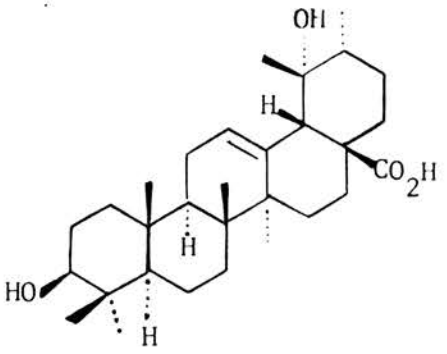
Stigmasterol



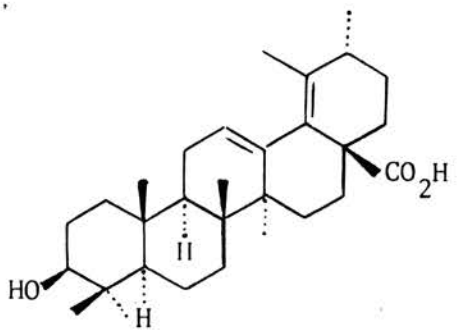
Oleanolic acid



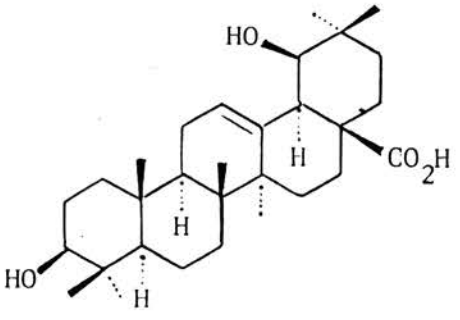
Cincholic acid



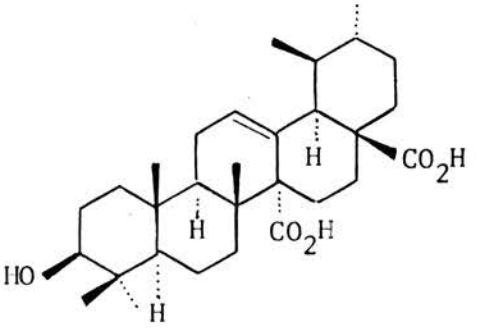
Randialic acid A.



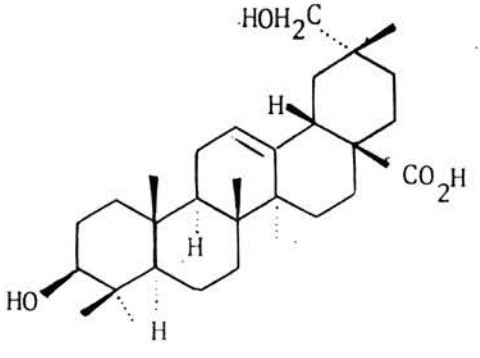
Randialic acid B.



Spinosic acid A.



Spinosic acid B.



Mesembryanthemoidigenic acid