



CHAPTER IV

DISCUSSION

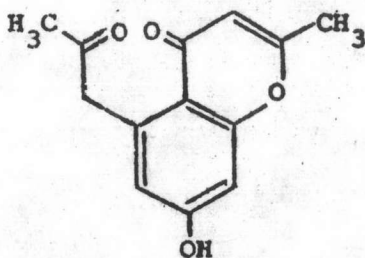
The *cassia* group of plants is attractive to the workers in natural product chemistry who search not only for new sources of economically valuable compounds but also for correlations between the structures of newly discovered physiologically active substances and those already known. (61)

Chemical compounds isolated from species of *Cassia* are anthraquinones, alkaloids, chromones, flavonoids and sterol compounds. The best known attribute common to the *Cassiae* is the cathartic drugs prepared from them. The present work has led to the isolation of aloe-emodin, which is the main anthraquinone from the leaves of *Cassia grandis* L. and the isolation of a dioxaphenalene derivative, barakol from the leaf-extract of *Cassia timoriensis* DC. No previous work on the mentioned chemical constituents of both *Cassiae* growing in Thailand has been reported.

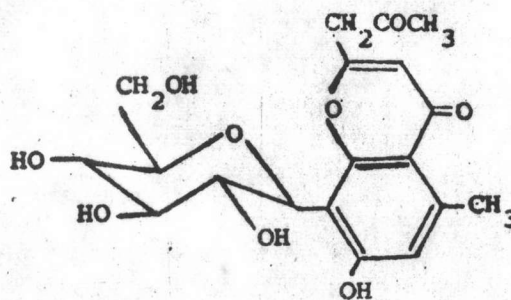
According to the chemical and physical properties, the main chemical compound isolated from the acidic leaf-extract of *Cassia timoriensis* DC. was identified as barakol. It is unstable, its chemical dehydration is easily achieved over phosphorus pentoxide desiccator or in a vacuum.

The main anthraquinone isolated from the leaves of *Cassia grandis* L. in this investigation showed the chemical and physical properties identical with those of alo-emodin obtained from *Cassia garrettiana* Craib. (29) and from *Rumex* spp. (102)

Barakol was the compound isolated from leaves of *Cassia siamea* Lamk. (119) and of *Cassia timoriensis* DC. It is the product of acid treatment of 5-acetonyl-7-hydroxy-2-methyl chromone, (20,120) the structure of which is isomeric with the aglycone part of the chromone-C-glycoside, aloesin, isolated from an Aloe species. (20,122)



5-acetonyl-7-hydroxy-
2-methylchromones



aloesin

2-acetonyl-8-glucopyranosyl-7-
hydroxy-5-methylchromone

The occurrence of these two isomers in *Cassia* of the Caesalpinaceae (dicotyledoneae) and in *Aloe* of the Liliaceae (monocotyledoneae), which are botanically unrelated to each other, is of interest as both contain anthraquinones. The co-occurrence of the isomeric chromone derivatives in two anthraquinone containing plants leads one

to conjecture that the chromone pathway is probably an offshoot of the anthraquinone biosynthesis from polyketomethylene precursors. (20) Reports of the anthraquinone findings of physcion, chrysophanol and cassiamin B from *Cassia siamea* Lamk. support the use of the drug as a laxative. The chromone is not expected to have any part in this pharmacological activity, since aloesin showed no laxative effect. (20) The chromone showed marked antibiotic activity against gram-negative organisms. (120)