CHAPTER V

DISCUSSION & CONCLUSION

The investigated methods on Khaao-Yen-Nuea Khaao-Yen-Tai sold in the commercial markets deal with the examination of macroscopic, microscopic (histology and powdered drug) characteristics of the crude drugs. There are several characters such as texture, size colour, weight and odour of the rhizome, various size and hilum appearance of starch granules, and raphide crystals of calcium oxalate shows that the drugs belonged to the three main genera ; *Smilax, Dioscorea* or *Pygmaeopremna.* Analysis by thin-layer chromatography patterns of chemical compositions and by comparison of the 40 sample drugs with the available four authentic-plant drugs, the author could identify *Smilax* as *Smilax glabra* Roxb. or *S. corbularia* Kunth (see Table 16, page 119-120, Table 17).

Table 17 Conclusion of Identification of the Investigated Sample Drugs

Group	Sample Drug No.	Amount of samples	Percentages	Identified plants
I	9, 16, 17, 18, 23, 24, 30, 38, 40, 41, 42	11	27.5	*Smilax glabra* Roxb.
II	11, 19, 28, 32, 33, 34, 35,	7	17.5	*Smilax corbularia* Kunth
III	15, 25, 31	3	7.5	*Dioscorea birmanica* Prain et Burkill
IV	5, 14, 20, 43, 44	5	12.5	*Pygmaeopremna herbacea* (Roxb.) Mold
V	6, 8, 7, 10, 12, 13, 21, 22, 26, 27, 29, 36, 37, 39	14	35.0	*Smilax* spp.

Sample group V showing the chemical constituents of individual sample resembled the *Smilax*, however they were unknown *Smilax*.

It was found that of the 19 samples obtained from the old-styled drug stores of Bangkok, most were identified to be genus *Smilax*. Only two samples (Nos. 14 & 15) belong to *Pygmaeopremna herbacea* (Roxb.) Mold. and *Dioscorea birmanica* Prain et Burkill. respectively (see table 18).

Table 18 Identification of Investigated Sample Drugs Dealing with Location

Commercial Area	Sample Drug No.	Amount of Samples	Identified Plants
Bangkok	6, 7, 10, 12, 13, 36, 37, 39	8	*Smilax* spp.
	9, 16, 17, 18, 30	5	*Smilax glabra* Roxb.
	11, 33, 34, 35	4	*Smilax corbularia* Kunth
	14	1	*Dioscorea birmanica* Prain et Burkill
	15	1	*Pygmaeopremna herbacea* (Roxb.) Mold
Other-provinces	8, 21, 22, 26, 27, 29,	3	*Smilax* spp.
	23, 24, 38, 40, 41, 42,	3	*Smilax glabra* Roxb.
	19, 28, 32	3	*Smilax corbularia* Kunth
	25, 31	2	*Dioscorea birmanica* Prain et Burkill
	5, 20, 43, 44	4	*Pygmaeopremna herbacea* (Roxb.) Mold

Hence, of the 21 samples obtained from 8 provinces, 15 samples were identified as *Smilax* spp. ; 2 samples obtained only in Chanthaburi were *Dioscorea birmanica* Prain et Burkill. and the 4 samples were *Pygmaeopremna herbacea* (Roxb.) Mold.

Table 19 Available Chemical Compounds of Sample Drugs from TLC Analysis

Group of sample drug	Diosgenin	Tigogenin	Smilagenin	β-Sitosterol	Stigmasterol
I	—	—	—	present	—
II	—	—	—	present	—
III	present	—	—	—	—
IV	—	—	—	present	—
V	—	—	—	present	—

Samples drug group I, II, IV, V are composed of the same chemical compound β-sitosterol while samples group III is composed of diosgenin. (see Table 19)

It is interesting that *Smilax glabra* Roxb. of China Mainland contains both diosgenin and tigogenin (8) while neither of them could not be found in the same plant of Thailand. This could be due to the influence of climate, geographical, distribution and cultivation conditions.

For any future investigation of Khaao-Yen-Nuea Khaao-Yen—Tai, more authentic plant drugs of other *Smilax* species should be required to ascertain the unknown identities of *Smilax* samples from various sources.

From this study it was found that 65 percent of sample drugs belonged to four plants ; *Smilax glabra* Roxb., *S. corbularia* Kunth, *Dioscorea birmanica* Prain et Burkill. and *Pygmaeopremna herbacea* (Roxb.) Mold. Hence, the specification of four plants was performed dealing with morphological, macroscopical, microscopical (histology and powdered) characteristic , TLC analysis, chemical and purity evaluation.

The purity evaluation of 4 groups of identified plants are shown in Table 20.

Table 20 Purity Evaluation 4 Groups of Crude Drugs

Group	Crude drug No.	Limit of				
		Moisture content(%)	Total ash content(%)	Acid insoluble ash content(%)	Water extractive(%)	Ethanol extractive(%)
I	1, 9, 16, 17, 18, 23, 24, 30, 38, 40, 41, 42	not more than 12	not more than 3	not more than 1	not less than 13	not less than 7
II	2, 11, 19, 28, 32, 33, 34, 35	not more than 12	not more than 3	not more than 1	not less than 13	not less than 10
III	3, 15, 25, 31	not more than 11	not more than 7	not more than 1	not less than 12	not less than 19
IV	4, 5, 14, 20, 43, 44	not more than 11	not more than 5	not more than 1	not less than 17	not less than 15