CHAPTER 5

CONCLUSION AND RECOMMENDATION

Large number of medicinal plants have been used in traditional medicine by Thai folks in the treatment of infectious diseases for a long time. Since these Thai medicinal plants have evidently the power to cure diseases. Antibacterial properties of 63 species belonging to 35 families of the vegetable kingdom have been evaluated against eight representative microorganisms which are suspected to be the cause of many diseases. Microorganisms tested are Bacillus subtilis (Ehrenberg) Cohn, Escherichia coli (Migula) Castellani and Chalmers, Lactobacillus fermentum Beijerinck, Pseudomonas aeruginosa (Schroeter) Migula, Salmonella typhi (Schroeter) Warren and Scott, Shigella dysenteriae (Shiga) Castellani and Chalmers, Staphylococcus aureus Rosenbach, and Streptococcus faecalis Andrewes and Horder.

The results are satisfactory because most (62 out of 63) of medicinal plants tested showed inhibitory properties. The values of MIC from our experiments are higher than those from antibiotic control but they can still be lowered by purifying crude extracts until active substance(s) are obtained. Representative microorganisms tested are susceptible to a wide range of antibiotic controls except Lactobacillus fermentum. This fact can also be applied to screening of antibacterial properties in this study. Most active antibacterial

extracts showed negative to chemical tests because the active substances may belong to other groups than alkaloids and glycosides tested or because of the instability of the active substances. Some general observations can be confirmed, for example, similarity of antibacterial actions throughout a genus. However, considerable differences in the potency of the active principles are noted within genus and even species. The most sensitive microorganism in their successive order against medicinal plants tested are Staphylococcus aureus, Bacillus subtilis, Salmonella typhi, Escherichia coli, Shigella dysenteriae, Pseudomonas aeruginosa, Streptococcus faecalis, and Lactobacillus fermentum.

Ethereal extract has the highest effective ratio while water extract has the lowest one. The distribution of the active substances in the plant varies in different cases; in many, it would seem to be contained in all parts of the plant; in others, the concentration in one part of the plant greatly exceeds that in any other part. Leaf is the most effective part of plant in this study and it is not surprising that leaves are often used in local remedies.

The results obtained are from in vitro tests. Further investigation in vivo should be carried on as well as their toxicity against test animals. It should be noted that the results shown in tables are results from crude extracts, further studies have been carried through to the identification of the responsible constituents. A void in our understanding of the structural requirements for antibiosis still exists. This void represents an incompletely explored source of new

substances potentially useful in the treatment of diseases for which the antibiotics of botanical origin are not entirely satisfactory in potency, or toxicity, or both.

Although our primary interest in this investigation was to uncover new leads to Thai medicinal plants having potentially useful and biologically active constituents, we feel that when enough data have been obtained, certain other useful information will be evident. That is, groups of plant taxa could well exhibit specific biologic constituencies which could lead to biotaxonomic relationships, paralling chemotaxonomic study.