

CHAPTER 6

CONCLUSION

Molecular phylogenetic study based on *trnL* intron sequences of chloroplast DNA and ITS regions of nuclear ribosomal DNA was performed to investigate genetic relationships among 16 Thai *Cassia* species. After compared the results with those of other qualitative and quantitative methods, the main conclusion from the molecular phylogenetic analyses could be drawn as a convincing recognition of significant division of *Cassia* sensu lato into three genera, i.e., *Cassia*, *Senna* and *Chamaecrista*. This suggestion agrees very well with a recent taxonomic recommendation for these genera in Flora Malesiana by Larsen and Hou (1996). The species should be remained in the genus *Cassia* are *C. fistula*, *C. bakeriana*, *C. grandis* and *C. fistula*. *Cassia* (*Senna*) *hirsuta*, *C.(S.) occidentalis*, *C.(S.) sophera*, *C.(S.) surattensis*, *C.(S.) obtusifolia* and *C.(S.) tora* should be members of the genus *Senna* and the genus *Chamaecrista* should compose of *C.(Ch.) leschenaultiana* and *C.(Ch.) pumila*. Two other Thai *Cassia*, *C.(S.) spectabilis* and *C.(S.) alata*, were closer to other *Cassia* (*Senna*) members following ITS sequence data and combined data analysed, therefore should be moved to the genus *Senna* too. Molecular phylogenetic comparison between these Thai *Cassia* species to other Cassiinae members gave more support for the segregation hypothesis. In brief, New-World *Senna lindheimeriana* and *S. bauhinioides* were clustered with Thai *C.(S.) sophera*, *C.(S.) occidentalis* and *C.(S.) hirsuta*, while *S. bacillaris* was grouped Thai *C.(S.) tora*, *C.(S.) obtusifolia* and *C.(S.) surattensis*. Moreover, New-World *C. grandis* (AF365092) was sistered with Thai *C. grandis* and located with in the *Cassia* (*Cassia*) group of *C. javanica*, *C. bakeriana* and *C. fistula*. Three more samples of the

genus *Chamaecrista* (*Ch. nictitans*, *Ch. sp.* Klitgaard and *Ch. sp.* Breteler) were also sit in the *Chamaecrista* clade of *C.(Ch.) leschenaultiana* and *C.(Ch.) pumila*.

Considering the conclusive suggestion from this molecular phylogenetic study, other Thai *Cassia* species which were not analysed in this M.Sc. thesis (also unamplifiable *C. siamea*) should follow Flora Malesiana recommendation too. For instance, *C. siamea*, *C. fruticosa*, *C. bicapsularis* should be moved from the genus *Cassia* to the genus *Senna*, while *C. absus* and *C. mimosoides* should be recognised as in the genus *Chamaecrista*. *Cassia agnes* which was renamed to be one subspecies of *C. javanica* should stay as one member of the genus *Cassia* as same as *C. javanica*. This phylogenetic study therefore help solving this long-time taxonomic problem of *Cassia* species and other members of the subtribe Cassiinae and can be an important background knowledge for further biological experiments. Moreover, these knowledges would be more useful to either phamacognosy because of their herbal medical usages, as database for plant breeding and ecological consevations of the taxa both in Thailand and in any part of the world.



ศูนย์วิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย