

CHAPTER V

CONCLUSION

5.1 Taxonomy

Based on morphology and molecular phylogeny evident from this study, there are totally 7 species of *Chiloschista* in Thailand, which are *C. extincitoriformis*, *C. exuperei*, *C. lunifera*, *C. parishii*, *C. rodriguezii*, *C. usneoides* and *C. viridiflava*. There are 2 new synonyms, which are *C. ramifera* Seidenf. (syn. of *C. lunifera*), *C. trudelii* Seidenf. (syn. of *C. viridiflava*). While *C. lindstroemii* Dalstrom & Kolan. is likely to be a synonym for *C. parishii*, unfortunately, I have not seen the type specimen yet. Another species name reported by Seidenfaden (1988), *C. pullisa* (Koen.) Schltr. is a synonym of *Taeniophyllum pusillum* (Wild.) Seidenf. & Ormerod, previously reported. Thus, the number of species in the genus *Chiloschista* in Thailand were reduced from 11 species to 7 species. There is no new record and new species found from recently.

A key to species of recently accepted was conducted. Each accepted species of *Chiloschista* in Thailand has been reported the nomenclature, including taxonomic literatures and type specimens, description, ecology, distribution and conservation status.

I have followed the IUCN Red List Categories and Criteria, version 14 (The Standards and Petitions Committee of the IUCN Species Survival Commission, 2019) to evaluate the conservation status of each species in Thailand. According to available localities and population information, three species are vulnerable which are *C. extincitoriformis*, *C. exuperei* and *C. rodriguezii*. The other 4 species are least concern (LC) due to being high number of existing individuals and populations. The result of the conservation status from this study has updated from the previous report (Chamchumroon, V., Suphuntee, N., Tetsana, N., Poopath, M. and Tanikkool, S., 2017), reducing the status of *C. extincitoriformis* as vulnerable (VU), and reducing *C. ramifera* (syn. of *C. lunifera*) and *C. viridiflava* as least concern (LC).

5.2 Phylogeny

In this study, the totally 7 species with accepted based on morphology were employed to analyze the phylogenetic tree. I have been presented the species in the *Chiloschista* which have never been sequenced on *matK* and ITS which are *C. extinatoriformis* and *C. rodriguezii* based on specimens collected from Thailand. Both are the endemic species to Thailand.

The phylogenetic analysis of the genus *Chiloschista* based on molecular data, *matK* and ITS from this study has confirmed that this genus is monophyletic group. Each species according to Seidenfaden's species circumscription (Seidenfaden, 1988) form a clade indicating that they are good species based on phylogenetic species concept. However, the relationship among the species is not grouped together and not being any subclade. To reveal a more intra-specific relationship of *Chiloschista*, it should be added more gene regions for the phylogenetic analysis.

The result based on phylogenetic analysis from this study showed that the closed morphology species group which were *C. parishii*, *C. usneoides* and *C. viridiflava* which I thought that they could be the same species, because they were difficult to separate from each other when they were preserve in alcohol collection. However, based on the phylogenetic tree of this study, the color pattern varied from small dots to rather large dots in *C. parishii* from different plants showed that they were the same species. It is indicating that there is broad variation. More samples which are related with morphological characteristic in different populations may reveal different result on phylogenetic tree.

For identification of the orchid by using the molecular evident of the genus *Chiloschista*, the ITS gene can be a good evident to identify at species level, better than *matK*. This shall be useful for identifying vegetative specimens without flower as well.