

CHAPTER 4

CONCLUSION

An investigation on the quantitative analysis of pigment, sericin and fibroin in *Nangnoi Si Sa Ket* silk cocoon from two sources (Nan and Chiang Mai provinces) revealed that the complete removal of the pigments of silk cocoon could be achieved by repeating reflux extraction for 4 times with 0.80 M CH₃COONa in 80 % v/v ethanol at 80 °C for 30 min. Thus, the total amounts of pigments were 24.0 ± 0.6 and 24.5 ± 0.4 mg/g in the cocoon samples obtained from Nan and Chiang Mai provinces, respectively. For the amounts of sericin and fibroin, the samples from Nan were 67.7 ± 4.9 mg/g and 550 ± 21 mg/g, respectively. While the amounts of sericin and fibroin in the samples from Chiang Mai were 77.8 ± 7.1 mg/g and 576 ± 33 mg/g, respectively. It was found that the amount of pigment, sericin and fibroin extracted from the samples from Chiang Mai were not significantly different from the samples from Nan. This result shows that silk cocoons obtained from two sources with the differences in weather, and raising conditions cannot cause any effects to the amounts of these compounds. However, the functional groups of pigment, sericin and fibroin were studied by Fourier Transform Infrared Spectroscopy (FT-IR). Pigment powders obtained from silk cocoon provided from two sources identically showed functional group which is

similar to lutein (carotenoid). For fibroin, their peaks of the two powders identically showed amide I, amide II and amide III as well. But for sericin, the peak of amide III disappears. The prominence of these features may be ascribed to the relatively high content of carboxylic acid and alkyl hydroxyl containing amino acid side chains in sericin.