

Antika Noochuay 2015: Preparation and Application of Saponins from *Sapindus rarak* Pericarp and *Glycyrrhiza* Root in Textile Chemical Processes. Master of Science (Textile Industrial Technology and Merchandising), Major Field: Textile Industrial Technology and Merchandising, Department of Textile Science. Thesis Advisor: Miss. Porn-tip Sae-bae, Ph.D. 86 pages.

This research aimed to study the extraction of saponins from Soap Nut Fruit (*Sapindus rarak*) and Licorice root (*Glycyrrhiza*) to be used as wetting agent in degumming silk as well as scouring cotton fabric. Additionally, to study the possibility of using the extracted saponins as dispersing agent in disperse dyeing on polyester fabric. Saponins can be extracted from Soap Nut Fruit pericarp (SN) and Licorice root (SL) using water as the solvent. Soap Nut Fruit pericarp contained saponins 55.08% by weight. The extracted saponins were in brown powder with good water solubility, foam well and CMC 6 mg/ml. The extracted can be used at the temperature not higher than 70 °C. The extracted Licorice root had saponins 20.09% by weight. The extracted saponins were in brown powder with good solubility, foam well and CMC 10 mg/ml. The extracted can be used at the temperature higher than 95 °C. The results showed that both extracted saponins powders from SN and SL could be used to degumming three types of Thai silk (Chul silk and 2 kinds of Luang-pairoach silk). By using both types of saponins with sodium carbonate as in the following process. First, degumming silk in 0.5 g/l sodium carbonate solution at 95 °C for 60 minutes. Then, put in the saponins extracted from both SN and SL with 20 g/l of saponins at 40 °C for 60 minutes. These degumming processes had no impact on tenacity and elongation properties of degummed silk. As for scouring cotton fabric, both types of saponins (SN and SL) should be used with sodium hydroxide. First, cotton fabric was prewashed in boiling water for 15 minutes then scoured cotton fabric in 4 %owf sodium hydroxide at 95 °C for 60 minutes. Finally, remove waxes using 40 %owf Saponins at 40 °C for 60 minutes. All scoured fabrics absorbed water in 5 seconds. In addition, saponins extracted from Licorice root can be used as dispersing agent in disperse dyeing on polyester, which would increase wash fastness property in polyester fabric.

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Student's signature

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Thesis Advisor's signature