Abstract

Research Title : STUDY OF NATURAL DYE RESOURCES AND UV PROTECTION PROPERTIES OF DYED FABRICS

Author : Ploysai Ohama
Saowanee Kumpun

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This research was concerned with UV protective dyes. The silk fabrics were dyed with five natural colorants. Influence of dyes on Ultraviolet Protection Factor was studied and found that dyeing with natural colorants dramatically increased the protective abilities. The most effective dye was that extracted from petals of *Targetes electra*, followed with *Terminalia catappa* leaves, *Citrus reticulata Blanco* peels, *Curcuma longa* L. roots and heartwood of *Caesalpinia sappan* L., respectively. Optical transmittance of natural dyes has been measured in the wavelength range of 200-800 nm. The dye that has absorbance with peaks appearing in the UVA region (315 to 400 nm) seems to have higher UV protection property. Dyeing with natural colorants can increased UV protection property of silk fabrics, 4 – 5 times higher than dyeing with synthetic dyes. Mordanting has also increased UV protection and color fastness properties of fabrics. The most effective was Fe mordant, however, it changed the fabric's shade to darker color. There was similar result between dyeing before or after weaving but the UV protection property respect to fabric construction. Dyeing high-porosity and thick silk with natural dye could reach excellent level of UV protection (UPF > 50+).