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Dyeing properties of noni root extracts on silk fabrics

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1. INTRODUCTION

Morinda citrifolia, known commercially as noni, grows widely throughout the Pacific and is one of the most significant sources of traditional medicines among Pacific island societies.

All parts of the plant have traditional and/or modern uses, including roots and bark (dyes, medicine), trunks (firewood, tools), and leaves and fruits (food, medicine). The bark contains a red pigment and the roots contain a yellow pigment, both used in making dyes. Dyes from noni were traditionally and are still used to color clothing and fabrics.

In this study, dyeing properties of noni root extract on silk fabrics were investigated.

2. EXPERIMENTAL

2.1 Dye Extraction

Dyes were extracted from noni root(32g) with hot methanol(800ml) under reflux at boing point for 4 hours and the extracts were evaporated under vacuum to dryness, and redissolved in ethanol.

2.2 Dyeing

Dyeing was carried out in a IR laboratory dyeing machine at a liquor ratio of 100:1. For the dyeing of silk, the dyebath (100ml) was prepared with noni root extract and the silk fabric was immersed in the dyebath and dyed for 40 min at a given temperature.

The exhaustion (%) of noni root extracts on the silk was estimated colorimetrically by measuring the absorbance of residual dyebath.

The effects of dyeing temperatures and mordanting on the dyeing properties of dyed silk with noni root extract was investigated by measuring color strength and the related color values of dyed fabrics.

The color fastness was determined according to International Standards: ISO 105 C06 A2S (color fastness to washing), ISO 105 E04 (color fastness to perspiration) and ISO 105 X12 (color fastness to rubbing). Staining and change in color were evaluated using grey scales.

3. RESULTS AND DISCUSSION

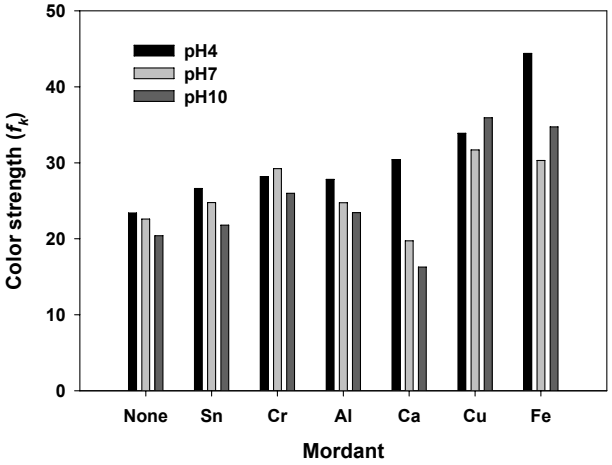

Fig. 1. Pre-mordanting effects on the color strength of dyed silk fabrics at various pHs.

The dyeing temperature effect on the color strengths of dyed silk fabrics was not remarkable in the range of 50 to 100℃.

The pre-mordanting with Fe and Cu showed the most improved color strength compared with non-treated silk fabrics. However, in case of color fastness, Fe showed relatively poor fastness results.

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4. REFERENCES

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