



Eco-dyeing using banana sap as a natural mordant for natural dye

Kanjarat Sukrat, Pornpailin Chareonsuk, Eklachan Chaichana and Adisak Jaturapiree*

Research Unit of Agriculture Residue Products and Biomaterials, Faculty of Science and Technology, Nakhon Pathom Rajabhat University, Muang, Nakhon Pathom 73000, Thailand

*e-mail: adisak_ja@hotmail.com

This research has been focused on the use of banana sap as a natural mordant for dyeing cotton yarn with natural dyes. In this experiment, the natural dye solutions used for the dyeing process were extracted from roselle flowers (*Hibiscus sabdariffa* L.) and sappan tree (*Caesalpiniasappan* L.). Two types of mordant were compared i.e. banana sap as bio-mordant and CuSO_4 as metal salt mordant in two mordanting methods including a pre-mordanting method which the mordant had been completely added into the cotton yarn prior the dyeing process, and a simultaneous mordanting method which the mordant was added during the dyeing process. The parameters to be evaluated in the study were dye exhaustion, color strength, colorimetric parameter L^* a^* b^* and fastness of the samples. The result showed that both mordants can improve dyeing ability of the cotton yarn such as the color strength and the dye exhaustion. The metal mordanted samples showed better dye ability than bio-mordanted samples. In the other hand, bio-mordanted samples presented better color fastness to washing than the metal mordanted samples. The pre-mordant method provided the better dyeing ability than the simultaneous mordanting method. Considering both dyeing properties and environment impact, it was concluded that the banana sap represented as a good mordant for dyeing the cotton yarn.

Keywords: banana sap, natural dye, bio-mordant, roselle flowers, sappan tree