Effect of Microwave Radiations on Natural Dyes' Application on Cotton

Authors : Rafia Asghar, Abdul Hafeez

Abstract : The current research was related with natural dyes' extraction from the powder of Neem (Azadirachta indica) bark and studied characterization of this dye under microwave radiation's influence. Both cotton fabric and dyeing powder were exposed to microwave rays for different time intervals (2minutes, 4 minutes, 6 minutes, 8 minutes and 10 minutes) using conventional oven. Aqueous, 60% Methanol and Ethyl Acetate solubilized extracts obtained from Neem (Azadirachta indica) bark were also exposed to different time intervals (2minutes, 4 minutes, 6 minutes, 8 minutes and 10 minutes) of microwave rays exposure. Pre, meta and post mordanting with Alum (2%, 4%, 6%, 8%, and 10%) was done to improve color strength of the extracted dye. Exposure of Neem (Azadirachta indica) bark extract and cotton to microwave rays enhanced the extraction process and dyeing process by reducing extraction time, dyeing time and dyeing temperature. Microwave rays treatment had a very strong influence on color fastness and color strength properties of cotton that was dyes using Neem (Azadirachta indica) bark for 30 minutes and dyeing cotton with that Neem bark extract for 75 minutes at 30°C. Among pre, meta and post mordanting, results indicated that 5% concentration of Alum in meta mordanting exhibited maximum color strength. **Keywords :** dyes, natural dyeing, ecofriendly dyes, microwave treatment

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