

# Ascorbic acid treatment to improve the light fastness or as reducing agent on silk fabric dyed with pulverised natural dyes

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## Abstract

**Purpose** – This study aims to improve the natural dyeing recipe with better light fastness using ascorbic acid (vitamin C) with pulverised plant dyes.

**Design/methodology/approach** – Silk fabrics pre-mordanted with alum (aluminium ammonium sulphate) were dyed using six types of plant dyes available in Sarawak, Malaysia, namely, Engkerabai leaves (*Psychotria viridiflora*), Ketapang leaves (*Terminalia catappa*), mangrove bark (*Ceriops tagal*), Sepang wood (*Caesalpinia sappan*), mangosteen husk (*Garcinia mangostana*) and onion skin (*Allium cepa*). Then, the dyed samples were immersed in vitamin C. The dyed and vitamin C-treated silk samples were exposed to direct sunlight for 40 h to test whether vitamin C had any effect on the light fastness of the dyed samples.

**Findings** – It was found that the fabric samples using vitamin C for after-treatment, particularly Engkerabai, Ketapang, mangrove and mangosteen, exhibited better light fastness. The colours of the four samples changed and looked darker when compared to the non-treated fabric samples. However, it was observed that vitamin C had a reverse effect on Sepang wood and onion skin. The acidic aqueous solution of vitamin C discharged the dyed samples instead.

**Originality/value** – In conclusion, depending on the plant types, vitamin C can be used to improve the light fastness of natural dyes or as a reducing agent for natural dyes.

**Keywords** Pulverised plant dyes, Reducing agent, Light fastness, Direct dye, Natural fiber, Acid dye, Engkerabai leaves (*Psychotria viridiflora*), Ketapang leaves (*Terminalia catappa*), Mangrove bark (*Ceriops tagal*), Sepang wood (*Caesalpinia sappan*), Mangosteen husk (*Garcinia mangostana*), Onion skin (*Allium cepa*)

**Paper type** Research paper

