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Research Paper :

Utilization of aloe vera for dyeing natural fabrics

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ABSTRACT

In this study, Aloe vera (*Aloe barbadensis)* was used for furnishing colour to textiles. This appears to be first novel and unique exploitation of *Aloe vera* for dye application on different natural fibres. Dye was extracted from fresh aloe solution obtained from churning whole Aloe vera leaf in a mixer. The dye thus obtained 'chrysammic acid' could be easily applied on silk and wool at lower pH which rendered rich golden yellow colour. Washing deepened the colour which could be advantageous to the consumer. The dye could be used on cotton with the help of different mordants to produce different colours varying from yellow, pink, khaki to brown.

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Key words : *Aloe barbadensis,* Chrysammic acid, Grey scale, Mordant, Wash fastness

The consumers, the world over have realised the importance of eco-friendly, biodegradable natural dyes which are being encouraged and preferred by everyone. Natural dyes have no health hazards or disposal problems but on the contrary act as a health care. Benefits of using natural dyes and finishes for textiles can be numerous. In its preparation and application, no or only mild chemical reactions are involved which are unsophisticated and harmonised with nature. Fabrics dyed or finished with natural herbs can render added positive effects on the health of the wearer. It is well known that skin absorbs some elements which come in its contacts. This may be used to provide softening of skin, soothing and healing effects by finishing or dyeing of textiles or garments which are in constant touch with the skin always.

Aloe vera is considered as a miracle plant with all its virtues like healing properties, analgesic effect, antimicrobial properties, anti radiation, detoxifying agent, moisturising and anti ageing mechanism. Both oral intake and topical dressings have been documented to facilitate healing of any kind of skin wound, burn, or scald. It is also found to have antimicrobial properties.(Kumar and Krishaveni)

Indian Aloe

Scientific name: *Aloe barbadensis*
Family: Liliaceae
Hindi name: *ghee kunvar, ghrita kumari*

Aloe vera is a perennial plant that belongs to the lily family. It is not a cactus, even though it looks like a cactus. It grows wild in Madagascar and on the African continent, is a native of North Africa, Canary Islands and Spain. Because of its therapeutic properties, it is now commercially cultivated in the United States, Japan, in the Caribbean and Mediterranean countries. Now it is also found all over India.

Physical appearance of aloe plant:

Aloe plant is coarse looking, with a short stem, 30-60cm in height. Leaf size is approx. 38cm long, 10cm broad and 1.9cm thick and is densely crowded. The leaves are fleshly tapering to a blunt point, smooth, pale green, having thorny prickles on their margins. The plant is found throughout our country (Pandey, 2006).

The aloe constituents are derived from the aloe leaf which consists of three primary sections:

– The rind (photosynthesis takes place here with sap contained in the pericyclic transport tubules- xylem and phloem),
– The mucilage (container) layer and
– The parenchyma or gel fillet (storage) layer.
– Chrysamminic acid
– 2,4,5,7-Tetranitrochrysazin
– 1,8-Dihydroxy-2,4,5,7-tetranitroanthraquinone
– 1, 8- Dihydroxy-2,4,5,7-tetranitro-9. 10-anthraquinone