Dye

Use of microwave fixation in dyeing with natural colour

Until recently, use of microwaves in textiles is restricted to drying process. Recently, some researchers have studied the feasibility of using microwaves for variety of textile processes, e.g. drying, dyeing, finishing and printing. Owing to the importance gained by microwave heating and natural dyes, scientists working at Textile Research Division, National Research Centre, Dokki, Cairo, Egypt studied the effect of microwave fixation time, additives, and mordants in colouring wool fabric with natural dyes (lawsone, obtained from henna, ***Lawsonia alba*** **Lam.** leaves). They observed that lawsone (2-hydroxy-1,4-naphthoquinone) the dye component of henna, can be employed to print the wool fabric by using microwave fixation technique. Orange colours and higher K/S compared to that obtained by conventional methods are obtained without the need of drying step on using this technique. The colour strength and overall fastness properties of the microwave-fixed samples are found to be good and the samples acquire soft handle (Hakeim *et al*, *Indian J Fibre Text Res*, 2003, **28**, 216-220).

Red sandalwood for dyeing wool and nylon

The natural dyes, especially vegetable colourants due to their ecofriendly nature have aroused considerable interest in dyeing of textile. Researchers at Indian Institute of Technology, New Delhi and Institute of Fibre and Textile Chemistry, University of Stuttgart, Germany explored the possibility of red sandalwood extract as dye for wool and nylon. Red sandalwood **(*Pterocarpus santalinus* Linn. f.)** comprises complex colouring components, santalin and deoxysantalin. The colouring components were extracted with organic as well as aqueous alkaline solution from the sandalwood. The dye extracts can be applied directly on wool and nylon as well as with different mordants. The light fastness of the dyed wool samples improved substantially on mordanting with copper sulphate and ferrous sulphate. The wool and nylon samples dyed and treated with mordants, except copper sulphate, showed good wash fastness (Gulrajani *et al*, *Indian J Fibre Text Res*, 2003, **28**, 221-226).

Fibre

Fibre from weeds for paper and cordage industries

Weeds like, ***Alpinia allughas*** **Rosc.**, ***Clinogyne dichotoma*** **Salisb.** and ***Abelmoschus moschatus*** **Medic.** grow abundantly in the forests and wasteland areas of North eastern region. Scientists at Regional Research Laboratory, Jorhat studied their fibre quality and paper making properties. They were found suitable as pulping material and making cordage. Pulp with high yields and paper with good physical properties can be produced from these plants. The fibre materials are also capable of producing good quality cordage with high physical strength properties. Therefore, these plant materials will be suitable for use as alternative source of raw materials for paper and cordage industries (Goswami & Saikia, *J Sci Ind Res*, 2003, **62**, 802-808).

Abelmoschus moschatus

Spun kapok fibre into yarn

Kapok fibre is obtained from the seedpod of the tree, ***Ceiba pentandra* (Linn.) Gaertn.** (Hindi — *Safed semal*) found in India, Java, Indonesia and in some sub-Saharan African countries including Nigeria. Kapok fibre has relatively high non-cellulose content and a very smooth surface. This has discouraged its use as a textile fibre because it was presumed that it is extremely difficult or impossible to spin kapok fibre into yarn. The fibre was used in life jackets and for temperature and sound insulations and as a stuffing in pillows and mattresses. Researchers at Department of Textile Science and Technology, Ahmadu Bello University, Zaria, Nigeria studied the possibilities of spinning the kapok fibre into yarn and its blend with cotton fibre. They observed that the spinning of 100% kapok fibre beyond lap formation stage is not possible. However, the kapok fibres could be spun when blended with cotton in the ratio of 50:50. A blend with less than 50% cotton can only be spun with extreme caution. The yarn regularity and tenacity decrease while the yarn extensibility increases with the increase in kapok content in the blend. However, despite some loss in yarn quality, the significant reduction in production cost can be achieved by blending some kapok with cotton. Since cotton: kapok yearns are relatively weak, they could be used as weft yarns in weaving where the yarn is subjected to low stress and its bulkier nature will be an advantage since one of the desired characteristics in weft yarns is its good covering power (Dauda & Kolawole, *Indian J Fibre Text Res*, 2003, **28**, 147-149).

Quality attributes of double-humped camel hair fibres

Besides wool, the camel hair are also used in the textile industry for the manufacture of woolen cloth. These fibres are blended with wool in various proportions either to produce special effects or to enhance softness, beauty, colour and lusture of the end product. Out of the two different varieties of camels, viz. single humped (*Camelus dromedarius*) and double-humped (*Camelus bactrianus*), the double-humped camel of dry cold region comparatively produces superior quality hair. Scientists at National Research Centre on Camel, Bikaner and Arid Zone Research Centre, Central Sheep and Wool Research Institute, Beechhwal, Bikaner studied the quality attributes of double-humped camel hair fibres collected from shoulder, mid-side and hump regions of both calves and adults. They observed that the mid-side region fibres in both calves and adults have better textile properties which make them ideally suitable for apparels, such as sweaters, coats and shawls, and various other domestic utility items (wall hangings and hand-tufted carpets). The comparative analysis of the fibre quality attributes of calves and adults of bactrian camels indicates superiority of calves over adults. The fibre quality attributes, especially diameter and per cent pure fibre, support the use of camel fibres for woolen items (sweaters, coats and caps) in pure fibre form as well as in the form of blends with other animal fibres (wool and silk) and synthetic fibre. The fibre characteristics of bactrian camel, such as firmness and staple lengths, are considered to be the best as per the specification given (Sahani *et al*, *Indian J Fibre Text Res*, 2003, **28** 227-229).

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