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VEGETATIVE DYES FOR COLORING VARIOUS THREADS AND FABRICS

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Coloring substances of plant origin are diverse in chemical composition and structure. The most common substances are chemically related to flavanoid and carotenoid compounds, which are the basis of red, orange and yellow colorants.

Flavonoids, flavonoid derivatives, depending on the degree of oxidation or restoration of the heterocyclic fragment, can be divided into six main subgroups: catechins, leucoanthocyanins, flavanones, anthocyanins, flavones and flavanols. By chemical means (oxidation – restoration) it is possible to carry out the transition from one group of flavanoids to another.

The basis of natural red dyes are anthocyanins. They are obtained from the berries, cultivated or wild plants and from flower petals. They have indicator properties. In acidic solutions, anthocyanins form simple salt, in which the red dye is the flavonium cation. With a decrease in hydrogen ions, the red color turns into purple and, with further alkalization, will take on a blue color.

As you know, the flavanoid rutin is found in buckwheat and Japanese Saphora. Due to the large number of the given tree, we collected buds before flowering. On the basis of literature data, rutin was isolated by hot water extraction, which was dissolved in ethanol. An alcohol solution of rutin was used for dyeing fabrics with mordants.

For 500 cm No. 34/5 cord thread, No. 50/2 knitted material, tarpaulin following mordants were used: NiCI2 KAI (SO4) 2 * 24H2O, FeSO4, aluminum alum, yellow blood salt and potassium dichromate (Salt concentration – 0.1g/l; Temperature 90'C; Pressure 760 mmHg Art).

In this given case, the following results were taken (table 1).

Table 1

№	Fabrics	Aluminum alum	$FeSO_4$	Potassium dichromate	Yellow blood salt	Copper sulfare	$NiCl_2$	$CuCl_2$
1	Cotton fabrics	Yellow	Orange	Yellow	Yellow	Faintly yellow	Faintly yellow	Faintly blue
2	Lapsan	Yellow	Orange	Yellow	Yellow	Faintly yellow	Faintly yellow	Faintly blue
3	Tarpaulin	Yellow	Orange	Yellow	Faintly yellow	Faintly yellow	Faintly yellow	Faintly blue
4	Woolen fabrics	Yellow	Orange	Yellow	Faintly yellow	Faintly yellow	Faintly yellow	Faintly blue

The painted fabrics, together with colorless fabrics, were ironed, the colors did not fade, they were kept in a thermostat at 1000C for 2 hours, and they also a change in color was not noticed. When it was exposed to the sun for 48 hours no significant changes were found. While washing with soap and water, the coloring on the fabrics was retained.

Literature

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