



**ЎЗБЕКИСТОН РЕСПУБЛИКАСИ
ОЛИЙ ВА ЎРТА МАХСУС ТАЪЛИМ ВАЗИРЛИГИ**



**АНДИЖОН МАШИНАСОЗЛИК ИНСТИТУТИ
ва
ВОРОНЕЖ ДАВЛАТ ТЕХНИКА УНИВЕРСИТЕТИ**



**«ИЛМ-ФАН, МАДАНИЯТ, ТЕХНИКА ВА
ТЕХНОЛОГИЯЛАРНИНГ ЗАМОНАВИЙ ЮТУҚЛАРИ ХАМДА
УЛАРНИНГ ИҚТИСОДИЁТГА ТАТБИҚИ» МАВЗУСИДА**

**ХАЛҚАРО ИЛМИЙ-АМАЛИЙ
АНЖУМАН МАТЕРИАЛЛАР ТЎПЛАМИ**

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**INTENSIFICATION OF THE DYEING PROCESS
FROM SILK FABRICS, WATER-SOLUBLE DYES IN THE PRESENCE OF
CHITOSAN**

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Currently, taking into account market relations and the growing competition between textile enterprises in the context of increasing requirements for the quality of textile materials, there is a tendency to create resource-saving and environmentally friendly technologies using domestic local resources. Undoubtedly, at present, interest in aminopolysaccharides, especially in chitosan (ChZ), which has a number of valuable properties, such as biodegradability, environmental friendliness, film-forming and thickening properties, is increasing [1]. It is known that chitosan has antibacterial properties, good biological activity, and the ability to form film. In addition to these properties, chitosan undergoes biological degradation without the formation of harmful substances and is obtained by chemical modification of renewable natural compounds and is an environmentally friendly biodegradable polymer.

We have obtained chitosan from the bee dead by a chemical method. The chemical method is based on deproteination, demineralization and depigmentation using chemical reagents, acids, alkalis, peroxides, etc. [2-4].

It is gratifying that chitosan is actively used even in the textile industry for dyeing, printing and finishing various natural fabrics, such as wool, cotton and silk [5-6]. The unique structure of the chitosan macromolecule and the presence of a positive charge expands the scope of its application. It is known that it is possible to intensify the dyeing process when fixing dyes by introducing organic compounds so that the substance can be easily removed and biologically degraded. In turn, the use of intensifiers provides for high economic efficiency and minimum concentration in the dye bath [7-8].

For the study, we used synthesized chitosan from the dead bees *Apis Mellifera.*, Crepe de Chine fabric produced by Bukhara Brilliant Silk, as well as an active dye "active red S-3B-150" (DCTA).

A composition for dyeing natural silk with active dyes, containing an active dye, sodium carbonate, electrolyte and water, additionally contains a dye intensifier, which is used as chitosan, and sodium sulfate (Na_2SO_4) is used as an electrolyte, which increases the selectivity of the dye from the solution to silk. Sodium carbonate is used

as an alkaline agent, which creates an optimal pH environment for the reaction of the dye with silk. With the following ratio of components, g / l: dye - 0.4 g / l; sodium carbonate - 2 g / l; sodium sulfate - 20 g / l; chitosan - 0.1-1.5 g / l; water - up to 1 liter. The claimed composition is prepared in a known manner; into the measured amount of softened water with vigorous stirring with a stirrer, to a concentration of 0.4 g / l (or 3% by weight of silk), then stir until the dye is completely dissolved at a temperature of 25-30°C, then add chitosan.[9-10]

The synthesized chitosan as an intensifier was further used to dye the crepe fabric of Crepe de Chine. Process data and examples of results are shown in Table 1.

Table 1

№	Name of chemicals	Known	Suggested composition. examples		
		1	2	3	4
1	Dye, g / l	0,6	0,4	0,4	0,4
2	Sodium carbonate, g / l	2,0	2,0	1,5	1,5
3	Sodium sulfate, g / l	20	15	15	10
4	Chitosan, g / l	-	0,5	1,0	1,5

Effect of chitosan on the degree of fixation, penetration of dyes and the intensity of color when dyeing silk fabrics

Table 2

The name of indicators		
Indicators	Colorant without intensifier, g / l	colorant + Chitosan 1.0 g / l
Fixation degree,%	34	37
Penetration rate,%	68	74
Color intensity, K / S	5.0	6.8
Increase K / S,%	-	36
Durability of colors, point		
To wash	4/4/5	5/5/5
To friction		
To wet	4/5	5/5
To dry	5/4	5/5

Table 3 shows that the proposed composition at a concentration of 1.0 g / l leads to an increase in the degree of fixation of the active dye by 37 g / kg.

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Anotatsiya. Ushbu maqolada elektr energetikaning qator fanlarida qo'llaniladigan murakkab zanjirlarni hisoblashni kontur toklar va tugun potensial usulidan olingan natijalarni zamonaviy kompyuter dasturlaridan bir bo'lgan Multisim dasturidan foydalanib olingan natijalarni taqqoslangan.

Kirish. Energetika sohasidagi ilmiy izlanuvchilar, magistrantlarning ilmiy ishlarida murakkab elektr zanjirlarni hisoblash ko'plab uchraydi va bu ko'p vaqt talab

