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NEW COMPLEXES USED TO INCREASE THE DYING PROCESS EFFICIENCY OF THE TEXTILE MATERIALS IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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Abstract

This work presentes a study of preparation and stability in aqueous medium of complexes obtained by the reaction between Fe(III) with 2-amino-6-methoxy-benzothiazol-sodium sulphonate →1 naphtol-4-sodium sulphonate. In this purpose, the investigation methods applied were as follows: pH-metry, conductometry, and the UV-VIS spectrophotometry. The molar combination ratio of ligand to central metallic atom, and the stability constants for new obtained compounds were determined using "molar ratio method" (Yoe and Jones), "Continuous Variation" method (Job) and Harvay-Manning method. Based on the investigations performed, these compounds might be employed for dying white woolen fibers, to obtain colors from blue to violet. The resulted colors after dying are very homogenous and intensive. The exhausted dying bath was about 98% from the complexed compound of Fe(III) with 2-amino-6-methoxybenzothiazol-sodium sulphonate→1 naphtol-4-sodium sulphonate obtaining in acid medium and 30 % from the free dye. Another practical aspect is related to the possibility of iron recovery from the residual processing solution, solving in this way both the environmental problems and technological aspects from the dyeing process in textile industry.

Key words: Fe(III), ligand, spectrophotometry UV-VIS, textile dyeing

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