

STUDY OF MOLYBDENUM (VI) INTERACTION WITH RUTIN USING SPECTROPHOTOMETRIC METHOD

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As is known, molybdenum is widely used in various branches of modern technology and industry. It is used for alloying steels as a component of heat- and corrosion-resistant alloys. Molybdenum wire (tape) serves for the production of high-temperature furnaces, inputs of electric current in bulbs. Molybdenum compounds - sulphide, oxides, molybdates - are catalysts of chemical reactions, pigments of dyes, glaze components. Molybdenum is a part of microfertilizers, and also used in high-temperature vacuum resistance furnaces as heating elements and thermal insulation.

In addition, molybdenum is one of the basic microelements in human and animal nutrition. It is contained in many living tissues and is necessary to maintain the activity of certain enzymes involved in the catabolism of purines and sulfur-containing amino acids.

The relevance of developing methods for the determination of molybdenum takes into account its role in engineering, biology and metallurgy. In this connection, it is of great practical interest to develop new spectrophotometric methods for the determination of molybdenum, which is an important task of modern analytical chemistry. It is known that biologically active compounds - flavonoids - are used to determine a number of elements. It has been established that flavonoids have the ability to bind transition metal ions to chelate complexes. In the literature, there is practically no information on the complex formation of molybdenum with these compounds.

In the present work, the interaction of molybdenum (VI) with one of the representatives of the flavonoid class - rutin - in the water-ethanol medium was studied by the spectrophotometric method. It was found that Mo (VI) reacts with the rutin in water-ethanol solutions to form an orange complex compound. It is characterized by a band of maximum absorption in the spectrum at 490 nm. Dependences of the optical density of solutions of complexes on various factors were studied: time, solvent content, pH of the medium, concentration of rutin. A method for determination of molybdenum has been developed.