

TRANSITION METALS DIOXIMATES.

THE "OPEN BOOK" ISOMERISM OF COBALT(III) *TRANS*-DIOXIMATES

Academician Antonie Ablov - the founder of the *scientific school in the field of chemistry of coordinating compounds* in the Republic of Moldova, had a considerable contribution in the study of coordinating combinations, including coordinating compounds of cobalt(III), nickel(II), copper(II) and iron(II) with α -dioximes. The research conducted by academician Antonie Ablov in the field of transition metal dioximates was a unique and extraordinary chapter in the world history of coordinative chemistry and a beautiful example of the development of coordinative chemistry as a science.

The study of the chemical transformations of hydrogen dinitro-bis-(dimethylglyoximate)cobalt(III) revealed the octahedral structure and *trans* configuration of cobalt(III) dioximates - a wide class of coordinating compounds. These are the simplest models of a natural compound of paramount importance for the normal vital activity of living organisms, i.e. vitamin B₁₂. It turned out that cobalt dioximates can serve as biological models, which facilitate the study of some properties of vitamins.

Academician Ablov discovered the phenomenon of *trans* influence in cobalt(III) dioximates, a phenomenon that expresses the ability of ligands to exert influence on those in opposite positions and highlighted the series of certain types of adhesions in order to change the capacity of *trans* influence, which allowed performing the reactions of directed substitution in cobalt(III) dioximates.

The new type of *trans* isomerism in cobalt(III) dioximates, called the "open book", is characterized by different values of the angle between the α -dioxime monoanions, located in the equatorial part of the octahedron.

Practical applications of the new isomerism may be used in:

- ❖ elaboration of efficient methods for the directed synthesis of new coordinating compounds of transition metals with original molecular structure and various valuable properties - useful for agriculture, food industry, pharmaceuticals (anti-cancer preparations) and other areas of the national economy.
- ❖ obtaining new complexes with programmed biological activity as efficient stimulators of vital processes in crops, micromycetes and algae (growth and development stimulators, production of enzymes, proteins, components with antioxidant properties, etc.).

