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# MOLECULAR COMPLEX COMPOUND OBTAINED IN THE PRESENCE OF PARA-NITROBENZOIC ACID ETHYLENEDIAMINE.

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*Abstract: This research clarifies the synthesis of a coordination compound of ethylenediamine (EDA) and para-nitro benzoic acid. Moreover, we studied the dependence of the synthesis process on time, temperature and the concentration. We investigated the newly synthesized coordination compound and proved its chemical structure by means of the Infrared spectroscopic method, elemental analysis, thermal analysis and X-ray structural analysis, furthermore, its thermal and chemical stability were shown.*

*Keywords: Ethylenediamine (EDA), para-nitro benzoic acid, complex compound, metal complex, coordination capacity, element analysis, thermal analysis, X-ray structural analysis.*

One of the main reasons for the growing interest in organic ligand complexes is the increased activity and prolongation of exposure period of active organic substances in complex compounds formed with various biometals. Among the substituted aromatic benzoic acids, nitrogen atomic bonds have been shown in the literature to have a high tendency to form biologically active and complex compounds. In the molecule of physiologically active compounds based on exchangeable benzoic acid electrophilic and electrophobic form strongly polar groups with reaction centers. Thus, they were found to exhibit antimicrobial and stimulant properties with showing biological activity. The given data have a clear theoretical significance and determine the field of study of electronic, stereochemical, kinetic and thermodynamic properties and properties of synthesized coordination compounds, as well. The aim of the work is to synthesize a complex compound of exchanged benzoic acid (para-nitrobenzoic acid (L)) with ethylenediamine, and to study the structure of the synthesized molecular complex compound using X-ray structural analysis.

The synthesis of the [L+EDA] molecular complex was carried out in an alcoholic medium, the L:EDA was obtained in a 1:1 ratio, and after adding the alcohol solutions they were mixed together using a magnetic stirrer for 30minutes. The reaction mixture was then left to crystallize. Ten days later, colorless monocrystals of the molecular complex were formed. It was washed several times in ethanol and dried. The Product yield is 67%.The Product yield is 67%. $T_{liquid}$ =168-170$^0$C

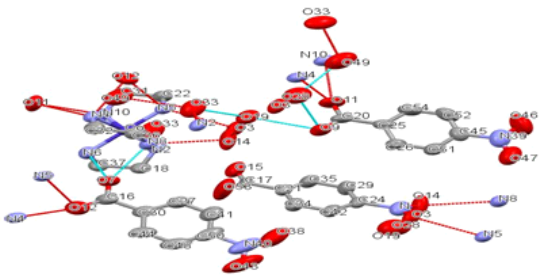

Figure1. X-ray image of the obtained complex compound.

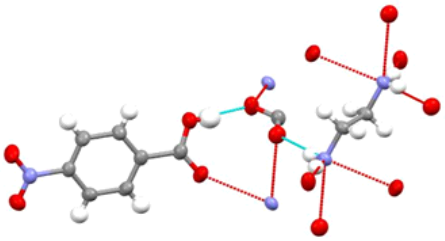

Figure2. The order in which the atoms of a synthesized complex bond.

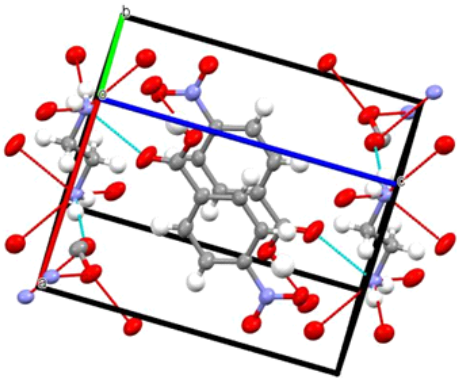

Figure3. The image of the location of the resulting complex relative to the axis of symmetry.

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