SYNTHESIS, CHARACTERIZATION, STRUCTURAL ANALYSIS AND ANTIMICROBIAL ACTIVITY OF *BIS*(*m*-PHENYLENEDIAMINE) TETRAOXIME

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Abstract. The synthesis of a new tetraoxime $H_4L{\cdot}2DMF$ (**1**) in a 60% yield was achieved by the interaction of dichloroglyoxime ($DClH_2$) with *m*-phenylenediamine in a 1:1 molar ratio in ethanol and DMF. Its structure was confirmed by spectral FTIR and ^1H, ^{13}C and ^{15}N NMR analyses, and single crystal X-ray diffraction. In addition, the antimicrobial activity of title compound have been investigated. Under similar conditions and the presence of Zn(II) ions a new polymorph of compound **1** - $H_4L{\cdot}2DMF$ (**2**) was obtained, and in the presence of Mn(II) or Gd(III) ions two new solvatomorphs $H_4L{\cdot}3.5H_2O$ (**3**) and $H_4L{\cdot}2C_2H_5OH{\cdot}0.33H_2O$ (**4**) were obtained. Their structures were confirmed by single crystal X-ray analysis.

Keywords: tetraoxime, *m*-phenylenediamine, X-ray diffraction, NMR and IR spectroscopy, antimicrobial activity.