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Some new cadmium halide Schiff base complexes: preparation, thermal stability and antibacterial/antifungal bioassay

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Metal Schiff base ligands introduce potential active sites for preparation of biochemical active compounds against various pathogen microorganisms [1]. Moreover, metal complexes of Schiff base ligands can present a variet of applications in biological, analytical, clinical and industrial fields [2]. Regarding the antimicrobial activity and highly qualified physicochemical, stereochemical, electrochemical, structural and catalytic properties of Schiff base metal complexes, these compounds have been considered to be of interest and this is attributed to their applications as pharmacological constituents [3]. Necessary biological reactions in life processes mostly involve transition metals; these metals usually coordinate with O- or N- terminals from protein in several modes and play a dominant role in the conformation and function of biological macromolecules [4]. Recently many papers have been reported on the cadmium Schiff base complexes and their properties such as antimicrobial and antioxidant activities. These complexes have shown powerful activity against bacteria and fungi[5].

In this work, a new bidentate Schiff base ligand entitle as Bis(3-(2-methoxyphenyl-2-propenaldehydene)-1,2- diaminobenzene and its four coordinated cadmium halide complexes(inwhich halide is chloride, bromide and iodide) have been synthesized and investigated by analytical and spectral data(FT/IR, UV-Visible and ^{1}H and ^{13}C NMR) and thermal analyses. Moreover antibacterial and antifungal properties of the ligand and its complexes were evaluated by well diffusion method.

Keywords: Cadmium complex, Schiff base, Antimicrobial.

References

[1] R. M. Irfan, M. A. Shaheen, M. Saleem, M. N. Tahir, K. S. Munawar, S. Ahmad, S. L. Rubab, T. Tahir, K. Kotwica-Mojzych, M. Mojzych, *Arab. J.Chem.*,14(2021)103308
[2] M. Montazerozohori, S. Zahedi, A. Naghiha, M. M. Zohour. *Mater. Sci. Eng. C* ***35*** *(2014) 204.*
[3] M. Montazerozohori, S. Zahedi, M. Nasr-Esfahani, A.Naghiha, J.Ind. . Eng. Chem., 20(2014)2463.
[4] F. B. Biswas, T. G. Roy, Md. Atiar Rahman, T. B. Emran, Asian Pacific J.Trop. Med., 7(2014) S534-S539.
[5] A. S. Waheeb, K. J. Al-Adilee, A. S. Al-Janabi, R. Shanmuganathan, M. M. Kadhim, J. Mol. Struct.,1267(2022)133572.