



## Synthesis, Spectral and Structural Studies of (Z)-3-hydroxy-1-phenylbut-2-en-1-one Zn(II) Complex

S. Javaregowda<sup>1\*</sup> and B. Pramodh<sup>2</sup>

1. Department of Physics, Bharathi College, Bharathi nagara, Mandya, Karnataka, **INDIA**
2. Department of Studies in Physics, University of Mysore, Manasagangotri, Mysuru, Karnataka, **INDIA**  
Email: [javaregowdas2013@gmail.com](mailto:javaregowdas2013@gmail.com)

Accepted on 3<sup>rd</sup> September, 2020

### ABSTRACT

An important class of  $\beta$ -diketone derivative, (Z)-3-hydroxy-1-phenylbut-2-en-1-one show a wide range of pharmaceutical applications and they are found to be an excellent precursor for the metal complexes and crystal engineering. In the present work Zn(II) complex with (Z)-3-hydroxy-1-phenylbut-2-en-1-one was synthesized and crystallized by slow evaporation method using methanol solvent. The Zn(II) complex was characterized by Fourier transform infrared spectroscopy and UV-visible spectroscopy to confirm the formation of metal complex. The molecular structure was confirmed by the single crystal X-ray structural analysis. Slightly distorted trigonalpyramidal  $ZnO_5$  coordination polyhedral is observed around the central metal ion. Intermolecular hydrogen bond interactions leads to the formation of  $R_2^2(12)$  and  $R_2^2(6)$  supramolecular ring motif along with C-H... $\pi$  and  $\pi$ ...  $\pi$  intermolecular interactions, which plays a major role in the molecular stability.

### Highlights

- Zn(II) complex with (Z)-3-hydroxy-1-phenylbut-2-en-1-one was synthesized and crystallized by slow evaporation method.
- The Zn(II) complex was characterized by FTIR and UV-Visible spectroscopy.
- The crystal structure was confirmed by the single crystal X-ray structural analysis.
- Intermolecular hydrogen bond interactions revealed the supramolecular ring motif of  $R_2^2(12)$  and  $R_2^2(6)$ .
- C-H... $\pi$  and  $\pi$ ...  $\pi$  intermolecular interactions also played a major role in the molecular stability.

**Keywords:** X-ray diffraction; Zn(II) complex, Supramolecular ring motif, Trigonalpyramidal.