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VARIOUS APPLICATIONS OF CARBAZONE DERIVATIVES AND THEIR METAL COMPLEXES : A REVIEW

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ABSTRACT : Carbazone Derivatives (CD) (semicarbazone, semithiocarbasone) are produced by the condensation reaction between a aldehyde (or ketone) with a carbazide derivatives (semicarbazide, semithiocarbazide). CD and their metal complexes existent a wide range of implementation that stretch from their ply in the medicinal and pharmaceutical area because of their major significant pharmacological characteristic such as anti-fungal,anti-bacterial, anti-cancer, anti-human immunodeficiency virus, anti-inflammation, anti-neoplastic,inhibition corrosion, antioxidation, antiradical. This paper reviews the definition, importance and various applications of carbazone derivatives with transitional metal.

Key words : Carbazone derivatives, transitional metal.

INTRODUCTION

Carbon Derivative generally make as chelating ligands consist of the donor (imine groups) who react together with transition metal unoccupied (d-orbital) product complexes. These are multi-function ligands in togetheranionic and neutral shapes (Ljubijankic *et al*, 2016). The functional grouping for chelation is where X = Oxygen and Sulphur for (semicarbazones and thiosemicarbazones), respectively. In some of the complexes, the (CD) coordinate to the metal ion as a bi-dentate ligand bonding by the S or O and the (N, hydrazino group) (Srivastava *et al*, 2015; Xu *et al*, 2013) (Fig. 1).

Carbazone Derivatives complexes are known to exhibit interesting stereochemical, electrochemical, physicochemical, pharmacological properties and biological activities. The complexes can show bio-activities which are not found by the free ligands. Several transition metals complexes have various applications such as anti-viral agent, catalyst and chemical sensor (Saddam *et al*, 2017; Gajendra and Vidhi, 2016).

Carbazone Derivatives (CD) and their metal complexes have been used as a drug and possess a wide various of biological activities and they are as well a useful type for inorganic biological processes, as well applicable in physical sciences such as electro chemical sensor, Langmuir film and non-linear optical (NLO) (Adwav *et al*, 2018; Mourva *et al*, 2013). (CD) are exceptionally diversity multi-dentate ligands that coordinate to lots transition metals with literature discuss application, and their potential to coordinate transition metal ions in geometries and a different of oxidation states (Ragab *et al*, 2016; Ali *et al*, 2014). It often acts as high affinity bi-dentate, tri-dentate, or tetra-dentate chelating ligand for the composition of metal complexes because of various of donor groups of S, O and N (Wurood, 2018). Cu (ii), Ni (ii) and Co(ii) complexes of (CD) significantly increase the bio-logical activities such asanti-bacterial, anti-HIV, anti-fungal, anti-inflammatory and effective anti-proliferative agents in breastcancer, targeting RNR, which deserve fulfillment as anti-cancer drugs (Niharika and Sanjay, 2015; Salman *et al*, 2014). (CD) shows a great variety of biological activity against tumor, influenza, protozoa virus, leukemia, malaria, bacteria, neoplastic and anti-convulsant. They have as well been used in metal analysis, optical computing, optical storage, for device applications relative to telecommunications and optical information processing (Basima *et al*, 2016; Wurood *et al*, 2018). (CD) are known to have an activity of anti-viral, anti-infective and anti-neoplastic through binding to Cu or Fe in cells (Jungang *et al*, 2018).

Many organic compounds a specially those containing un saturated double bonds and triple bonds, electronegative atoms (sulfur, nitrogen and oxygen) and aromatic rings have proposed as productive organic inhibitors for mild-steel metallic corrosion (acid media) (Idouhli *et al*, 2018). The properties and structure of the inhibitor such as steric factor, active groups, molecular