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Abstract
Thiosemicarbazones have been reported to have antituberculosis and anticonvulsant activity. However, in a number of cases the transition metal complexes of thiosemicarbazones showed greater biological activity, such as antiamoebic, antitumor and anticancer activity than the uncomplexed ligands. With the aim of obtaining new biological active compounds, this studies focuses on the syntheses of special and novel thiosemicarbazones, and transition metal complexes derived from thiosemicarbazones. The text is divided into three major parts:
In the first part, syntheses of special and novel thiosemicarbazones by three sections: (A) syntheses of aromatic fuse ring compounds with 1,2-diketone monothiosemicarbazone moiety (B) syntheses of the thiosemicarbazone derivatives with heterocyclic ring such as thiazole and imidazole (C) syntheses of the thiosemicarbazone derivatives substituted with o-hydroxyl, carbonyl and amino groups.
In the second part, by the spectra analyses and X-ray structural determination to study the coordination mode of new transition metal complexes which were synthesized by the reaction of various thiosemicarbazones with transition metal ion platinum(Ⅱ) and palladium(Ⅱ).
In the third part, pharmacological properties of all the synthesized compounds were studied and could be discussed separately by two sections: (A) evaluation of antioxidant activity－scavenging effect on DPPH radical; (B) antitumor activity evaluation: activity of the synthesized compounds have been tested against human hepatocellular carcinoma and human cervical epithelioid carcinoma cells by MTT assay. The testing result showed that both the thiosemicarbazones and metal complexes of thiosemicarbazones have better anticancer activity than that of 5-fluorouracil. and the metal complexes of thiosemicarbazones have better anticancer activity than that of thiosemicarbazones.
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