ABSTRACT

Six new Schiff bases were prepared from the reaction of 4-phenyl-1,3,5-triazine-2,6-diamine with 5-chlorosalicyladehyde, 5-bromosalicyladehyde, 5-nitrosalicyladehyde, 3-hydroxysalicyladehyde, 4-hydroxysalicyladehyde, and 3,5-di-*tert*-butylsalicyladehyde. Each of these Schiff bases were then reacted with Ni(II), Cu(II), and Zn(II) acetates to the corresponding complexes (total 18).

The Schiff bases were characterized by elemental analysis (CHN), Fourier transform infrared spectroscopy (FT-IR), ^{1}H- and ^{13}C- nuclear magnetic resonance spectroscopy (NMR), ultraviolet-visible spectroscopy (UV-vis), while the complexes were additionally characterized by CHN, FT-IR, UV-vis and thermogravimetric analysis (TGA).

All Ni(II) complexes are octahedral, all Cu(II) complexes are square pyramidal, and all Zn(II) complexes are tetrahedral.

The thermal stabilities of Ni(II) and Cu(II) complexes of H_2L1, H_2L2, H_2L3 and H_2L6 are similar (245-255^{o}C), but slightly higher than those of the corresponding Zn(II) complexes (225-230^{o}C), and significantly higher than those of H_2L4 and H_2L5 (200-210^{o}C)

The antioxidant activities of the Schiff bases and their complexes were measured in terms of their radical scavenging ability towards diphenylpicrylhydrazyl free radical (DPPH) and ferric reducing ability power (FRAP). All of the Schiff bases studied have higher antioxidant activities compared to the corresponding complexes. The Schiff bases

with the highest antioxidant activities are H_2L4 and H_2L5, while the complexes with the highest antioxidant activities are NiL4 and NiL5. The antioxidant activities increase with concentration of the compounds.