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Synthesis and Cytotoxic Activity of Platinum(II) and Platinum(IV) Complexes with 2-Hydroxymethylbenzimidazole or 5(6)-Chloro-2-hydroxymethylbenzimidazole Ligands against MCF-7 and HeLa Cell Lines



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Abstract: Four platinum(II) and 4 platinum(IV) complexes with the structures [PtL₂Cl₂], [PtL₂I₂], [PtL₂Cl₄], and [PtL₂Cl₂(OH)₂] (L = 5(6)-non/orchloro-substituted-2-hydroxymethylbenzimidazole ligands as "non-leaving groups"), respectively, were synthesized and characterized by their elemental analyses, and IR and ¹H-NMR spectra. In vitro cytotoxic activities of the platinum(II) and platinum(IV) complexes were tested against the human MCF-7 (breast cancer) and HeLa (cervix cancer) cell lines using the cell culture method. In general, the platinum(II) complexes were more active than the corresponding platinum (IV) complexes. The complexes, which were found to be less active than cisplatin, exhibited cytotoxicity comparable to carboplatin on the human MCF-7 and HeLa cell lines.

Key Words: Benzimidazole, cytotoxic activity, HeLa cell line, MCF-7 cell line, platinum(IV) complexes, platinum(II) complexes

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