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Supramolecular interactions in organoamidoplatinum(II) anticancer compound

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The investigation of the crystal packing of organoamidoplatinum(II) [Pt(p-YC6F4)NCH2CH2NR'2(py)X] (Y = H, F, Br; R'= Et or Me; X = Cl, Br, I) anticancer compounds show supramolecular interactions in the solid state which include intermolecular H bonding and π-π interactions.

The supramolecular interactions mainly depend on the nature of the alkyl groups (methyl/ethyl) present on the amine N. The crystal packing is similar for the compounds having same alkyl groups if a small substituent (H or F) is in the para position of the polyfluoroaryl ring, but the presence of bulky substituent like Br in the para position of the polyfluoroaryl ring changes the crystal packing. Due to the difference in crystal packing, H-bonding is slightly different for –NEt2 and –NMe2 compounds.

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Figure 1. X-ray crystal structure of Pt{(p-HC6F4)NCH2CH2NEt2}Cl(py)] (a) showing asymmetric unit. Hydrogen atoms are omitted for clarity and thermal ellipsoids are displayed at the 50% probability level. (b) showing H…F bonding (c) showing unit cell with H-bonding and π-π interactions between the polyfluoroaryl ring planes and between the pyridine planes.

Keywords

Platinum anticancer agents, supramolecular interactions, H bonding

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