STRUCTURAL STUDIES OF 3-CHLORO-*N*-(8′-QUINOLYL)× BENZO[*b*]THIOPHENE-2-CARBOXAMIDE

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UDC 541.6:547.12

3-Chloro-*N*-(8′-quinolyl)benzo[*b*]thiophene-2-carboxamide was synthesized from 3-chlorobenzo[*b*] thiophene -2-carboxyl chloride and 8-aminoquinoline in the presence of triethylamine. The single crystal X-ray structure determination confirmed the earlier proposed structure and also characterized by ^{1}HNMR, and Mass spectroscopy. Crystallographic study reveals that the structure crystallizes in monoclinic system, a = 14.878(4) Å, b = 8.4292(15) Å, c = 25.461(7) Å, β = 112.022(18)°, Z = 8, V = 2960.20(12) Å^3 with space group $C2/c$ (No. 15). In the structure packing, three kinds of interactions are responsible for the stability of the structure. Infinite two-dimensional stair-like layered chains are formed by relatively strong intermolecular hydrogen bonds [C14–H14…O1]. These parallel chains are connected by several π–π and CH–π interactions, alternatively. There are two such parallel chains with 70.53°, which are in contact by van der Waals interactions.

Keywords: benzothiophene, carboxamide, crystal structure, hydrogen bonding, CH–π interaction, π–π interaction.