

عنوان مقاله:

Antituberculosis Activity, Synthesis of 3-((1H-Benzo[d]imidazol-2-ylthio)methyl)-2-chloroquinoline Derivatives Using Copper Nanoparticles Grafted on Carbon Microspheres

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خلاصه مقاله:

The copper nanoparticles grafted on carbon microsphere (Cu-NP/C) catalyst was used to create a convenient and efficient synthesis of 3-(1H-benzo(d)imidazole-2-ylthio) methyl-2-chloroquinoline (4a-f) from 2-Chloroquinoline-3-carbaldehyde (1a-f) and 1H-benzo[d]imidazole-2-thiol (Scheme-1, Table-2). The synthesis was placed under mild reaction conditions, resulting in a excellent yield (92-97%, Table-2) of the appropriate compounds. The prepared compounds were characterized by H¹NMR, IR, and Mass spectroscopy. These synthesized compounds were studied for antituberculosis activities (Table-3, 4a-f) against standard drug isoniazid and rifampicin and show moderate activity. To explain the experimentally discovered affinity for 3-((1H-benzo[d]imidazol-2-ylthio)methyl)-2-chloroquinoline derivatives, molecular docking studies were conducted. A .molecular docking study reveals the 4e and 4f derivatives of 3-((1H-benzo[d]imidazol-2-ylthio)methyl)-2-chloroquinoline to be the most active ones

کلمات کلیدی:

1H-benzo(d)imidazole-2-ylthio)methyl-2-chloroquinoline, 2-chloroquinoline-3-carbaldehyde, Antituberculosis Activity, Molecular docking, 1H-3 benzo[d]imidazole-2-thiol, Copper Nanoparticles Grafted on Carbon Microspheres

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