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Evaluation of Antimicrobial Activity and Efficient Synthesis of 3, 4-Dihydropyrimidin-2-(1H)-One by Using Cobalt Chloride Doped Polyaniline Composite (PANI-Co) As Catalyst

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ABSTRACT:

The present study aimed to use a method for the synthesis of some 3, 4 -dihydropyrimidin-2-(1H) - ones by using Cobalt Chloride Doped Polyaniline Composite (Co- PANI-) as Catalyst. The study tried to study the Biginelli reaction can be performed without solvent and with new catalyst or not. To find the effectiveness of the catalyst (Co- PANI), we described a novel protocol for the efficient synthesis of some 3, 4-dihydropyrimidin-2- (1H) -one using aldehydes, alkyl acetoacetate, and urea or thiourea at 80°C under solvent-free conditions by Cobalt Chloride Doped Polyaniline Composite (Co-PANI) as Catalyst. This catalyst is efficient due to its high yields, use in mild conditions, ecofriendly, environmentally friendly, cost effective and reusable. The synthesized compounds were characterized by spectroscopic technique. The synthesized compounds were evaluated for antimicrobial activity. The results showed that these compounds show a remarkable biological activity against all the tested bacteria. We have demonstrated a novel method for the synthesis of substituted dihydropyrimidinones catalyzed by Cobalt Chloride Doped Polyaniline Composite (Co-PANI) as Catalyst.

Keywords: Cobalt Chloride Doped Polyaniline composite (Co-PANI), DHPMs, antimicrobial activities, Biginelli reaction, MIC.

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