

Synthesis of N-Mannich bases from 3, 4-dihydropyrimidin-2(1H)-ones by using nanostructured Cobalt Chloride Doped Polyaniline Composite as Catalyst (PANI-Co)

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Abstract: The Mannich reaction is the type proton assisted of carbon-carbon bond formation reaction that involves the addition of resonance-stabilized carbon nucleophiles to iminium salts and imines. The product of the Mannich reaction is β -amino carbonyl compounds of biological interest synthesized from the aldehyde, amine, and carbonyl compounds. This reaction is very limited to the only highly reactive aldehydes such as formaldehyde and acetaldehyde, a secondary amine. The direct Mannich-type reaction expanded with the development of the scope of Mannich reaction, and very much efficient method for highly stereo selective type Mannich reactions were extensively well studied and reported in the literature. This study aimed at investigating the synthesis of N-Mannich Bases from the 3, 4-Dihydropyrimidin-2(1H)-ones by using nanostructure Cobalt Chloride Doped Polyaniline composite as Catalyst (PANI-Co). The Synthesis of N-Mannich Bases from 3, 4-Dihydropyrimidin-2(1H)-ones by using nanostructure Cobalt Chloride Doped Polyaniline composite as Catalyst (PANI-Co) was carried out. The effective method for the synthesis of the Mannich bases of synthetically important compounds has been coined. We synthesized the different Mannich Bases from 3, 4-Dihydropyrimidin-2(1H)-ones which give up to 94 % yield.

1. Introduction

The end product of the Mannich reaction is beta amino compound [1-2]. The Mannich reaction is a type of nucleophilic addition reaction in the condensation of a compound with active hydrogen(s) with primary or secondary amine and formaldehyde [3]. The general schematic representation of Mannich reaction is given in **fig. 1**. The Mannich bases has found to be the great synthetic important and it acts as a biologically active compound and it is a potential agents for the synthesis of various medically valuable compounds which composes the amino alkyl chain in it. The amino alkyl chain containinf mannich bases are clinically important for example, biperiden cocaine, ethacrynic acid, atropine, ranitidine, trihexyphenidyl, fluoxetine procyclidine, etc. [4–6]. The Mannich bases are reactive compound and can be converted in to the other compound easily for example active amino alcohols physiologically [7].

The Mannich bases also possesses the number of potent activities such as anti-HIV [8], antimalarial [9], antifungal [10, 11], anticonvulsant [12], antiviral [13], antifilarial [14], anticancer [15, 16], anthelmintic[17], antibacterial [18,19], antipsychotic [20], antitubercular [21, 22], analgesic [23], anti-inflammatory [24, 25], along with the biological activity the Mannich bases are found to their extensive use in the detergent synthesis and commonly used as a additive in it. Such as the polymers surface active reagents[26]. The Mannich bases and the derivatives of these bases are extensively used as the intermediates for the synthesis of the biologically active compounds [27,28]. Also the extensive use of this reaction is to prepare or synthesized the compound containing Nitrogens [29].

