Synthesis and Characterization of Some New Dihydro Pyrimidin-2(1*H*)-One Derivatives

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Abstract. Pyrimidine is a very important class of heterocyclic compounds. Three compounds of dihydropyrimidin-2(1H)-one were synthesized as derivatives for chalcone compounds containing azo and imine group, which were substituted with a hydroxyl group. The reaction of chalcone with urea in the presence of glacial acetic acid as a catalyst was afforded variety of compounds of substituted pyrimidin-2(1*H*)-ones in high yield. All the synthesized compounds were characterized by FT-IR, ^{1}H NMR, and MASS spectroscopy.

INTRODUCTION

Hetero cyclic compounds are a very significant class of organic chemistry due to their applications in the industrial, biological and medical field. There are many compounds that contain within its structure in addition to the heterocyclic ring containing groups of chalcone and imine, which showed an increase in the pharmacological and biological activity of the heterocyclic compounds [1]. Heterocyclic compounds act as radical scavengers and as polymer stabilizers [2]. Over time polymers will be degraded and much other changes in the polymer properties and service life as the result of oxidative [3] when exposed to corrosive environments, radiation, ozone, oxygen, and overheating [4-7]. These compounds may be added to decrease polymer degradation, such as hindered heterocyclic combining phenols are the most common stabilizer [8]. Heterocyclic compounds also have many pharmaceutical applications such as Antimalarial activity by altering the DNA of parasitic due to their ability to bind to it [9], Analgesic Activity this is an attribute to their ability to regulating and balance the active oxygen and nitrogen species [10-12], anti-viral, anti-inflammatory, and anti-tumor. Heterocyclic compounds are reported as hypnotic drugs for the nervous system [13, 14]. Pyrimidine derivatives are a very significant class of heterocyclic compounds, have been widely known due to their essential biological activity [15]. Pyrimidine is an exit in many natural products like antibiotics, vitamins, and hormones [16]. Pyrimidine base is present in uracil, thymine, and cytosine, which are the basic blocks of RNA and DNA [17]. There are many methods for the synthesis of pyrimidine. Biginelli reaction is a very critical protocol for synthesis 3, 4-dihydropyrimidin-2 (1*H*)-ones and the corresponding thiones with using trichloroacetic as a suitable catalyst [18]