I.A.U.
Karaj Branch

Journal of Applied Chemical Research, 6, 2, 78-84 (2012)

Journal of Applied Chemical Research
www.jacr.kiau.ac.ir

Synthesis of Nitrogen Functional Derivatives of 5-substituted-6-azauracil as one of the Four Nucleobases in the Nucleic Acid of RNA

H.Kabirifard*, Z.Alimardani, N.Ataeimehr, G.Rezai
Department of Chemistry, Islamic Azad University, North Tehran Branch, Tehran, Iran

(Received 22 Nov. 2011; Final version received 05 Apr. 2012)

Abstract

3-Arylhydrazono-2,4-dioxo-4-phenylbutanoateshave been prepared by the coupling of benzoylpyruvate with aryldiazonium chlorides.Reactions ofthe 3-arylhydrazono-2,4-dioxo-4-phenylbutanoateswith 1-aminoguanidine, semicarbazide, and thiosemicarbazidegave5-substituted 2-imino-6-azauracil (**3a**),6-azauracil (**3b**), and 2-thio-6-azauracil (**3c**), respectively. The analytical data of these compounds - IR, 1H, and ^{13}C NMR spectral data - are reported.

Key words: *Coupling; Benzoylpyruvate;Arylhydrazone;1,2,4-Triazin-5-one, 6-Azauracil.*

Introduction

4-Aryl-2,4-dioxobutyrates are the formal derivatives of pyruvic acid and are as such trivially referred to as benzoylpyruvates. Being endowed with multiple functionalities, they are important synthetic precursors, capable of interacting with both electrophilic as well as nucleophilic reagents.In particular, in the latter case they offer a versatile scaffold on which to mould annulated rings carrying distinct structural features. This versatility draws its impetus from the conspicuous qualitative differences between the three carbonyl functionalities, which makes regio- and chemoselective discrimination possible. Through a judicious matching of the applied nucleophilic species, the mode of annulation may be predicted, rendering a powerful tool for the construction of a variety ofheterocyclic compounds [1].Reactions of benzoylpyruvates with *N,N*- and *N,O*-dinucleophiles carrying a two-unit linker lead to formation of heterocyclic compounds [1-10]

It is know that benzoylpyruvate react with aryldiazonium salts to form the corresponding 3-arylhydrazono-2,4-dioxo-4-phenylbutanoates [11].

Similarly, 3-arylhydrazono-2,4-dioxo-4-

**** Corresponding author:*** *Dr. Hassan Kabirifard,Department of Chemistry, Islamic Azad University, North Tehran Branch, Tehran, Iran. E-mail: hkabirifardlz@yahoo.com, Tel: +9821-22423386,Fax: +9821-22404843.*