Synthesis of some new Benzoic acid hydrazide Schiff's bases

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:Abstract

Hydrazide group having a neucleophilic activity therefore using in a neucleophilic addition reactions with aldehydes substituted compounds, where prepare benzoic acid hydrazid (I) from reaction of ahydrazide compound with appropriate ester, then using (I) in addition reactions with appropriate aldehydes substituted compounds namely P-N,N-di methyl amino benzaldehyde, P-Nitro benzaldehyde, ,P- methoxy benzyldehyde , 2,4-di methoxy benzyldehyde and 2-hydroxy -4-methoxy benzaldehyde respectively, to give a new five compounds from Benzoic acid hydrazide Schiff's bases, which may be have a biological activity. All compounds identified by IR, been following up chemical reactions with TLC techniques.

الخلاصة:

مجموعة الهيدرازيد لها فعالية نيكلوفيلية وتستخدم في تفاعلات الإضافة النيكلوفيلية مع الالديهايدات المعوضة,عندما يحضر هيدرازيد حامض البنزويك *(I)*من تفاعل مركبات الهيدرازيد مع الاسترات,ثم باستخدام*(I)*في تفاعلات الاضافة لمركبات الالديهايدات المعوضة التي تسمى
P-N,N-di methyl amino benzaldehyde, P-Nitro benzaldehyde, ,P- methoxy benzaldehyde , 2,4-di methoxy benzaldehyde and 2-hydroxy -4-methoxy benzaldehyde respectively.
من اجل الحصول على خمسة مركبات جديدة قواعد شيف لهيدرازيد حامض البنزويك والذي يمكن إن تكون له فعالية بايولوجية . جميع المركبات شخصت بطيف تحت الحمراء وتمت متابعة التفاعل بتقنية ال تي أل سي.

:Introduction

Schiff base are characterized by the imine group which is important in elucidating the mechanism of transamination and racemisation reactions in biological systems [1-3]. Due to the great flexibility and divers structural aspects, a wide range of Schiff bases have been synthesized and their complexation behavior

studied [4]. They have synthesized from a variety of compounds, such as amino thizoles, 2-hydroxy-1-naphthaniline, amino sugar, aromatic aldehydes, the trizole ring, thiosemicarbazides, amino acids, pyrazolone, carbohydrazide, etc [5-10].

Literature survey shows that Schiff bases show bacteriostatic and bactericidal activity [11].Antibacterial, antifungal, antitumer, anticancer activity has been reported and they are also active against a wide range of organisms [12-14].

Many Schiff bases are known to be medicinally important and are used to design medicinal compound [15-16].

The present paper describes the synthesis of some new Schiff bases from different aldehydes with carbohydrazide compound.

Experimental:

Materials and methods:

All melting points uncorrected and were taken in open capillaries on digital M.P. electrothermal apparatus .infrared spectra were determined in KBr on Ftr.-84005 Infrared spectrophotometer shimadzu.

Synthesis of compounds:

Benzoic acid hydrazide (carbohydrazide):

Methyl benzoate (21.25 ml) added to (5 ml) of hydrazine hydrate 99%, refluxed for two hours then added (20 ml) ethanol. The mixture were refluxed for (24 hours), cooled. The precipated solid product was separated and recrycrystallized from ethanol as a crystals, Table (1).

Benzoic acid hydrazide Schiff's bases (2-6):

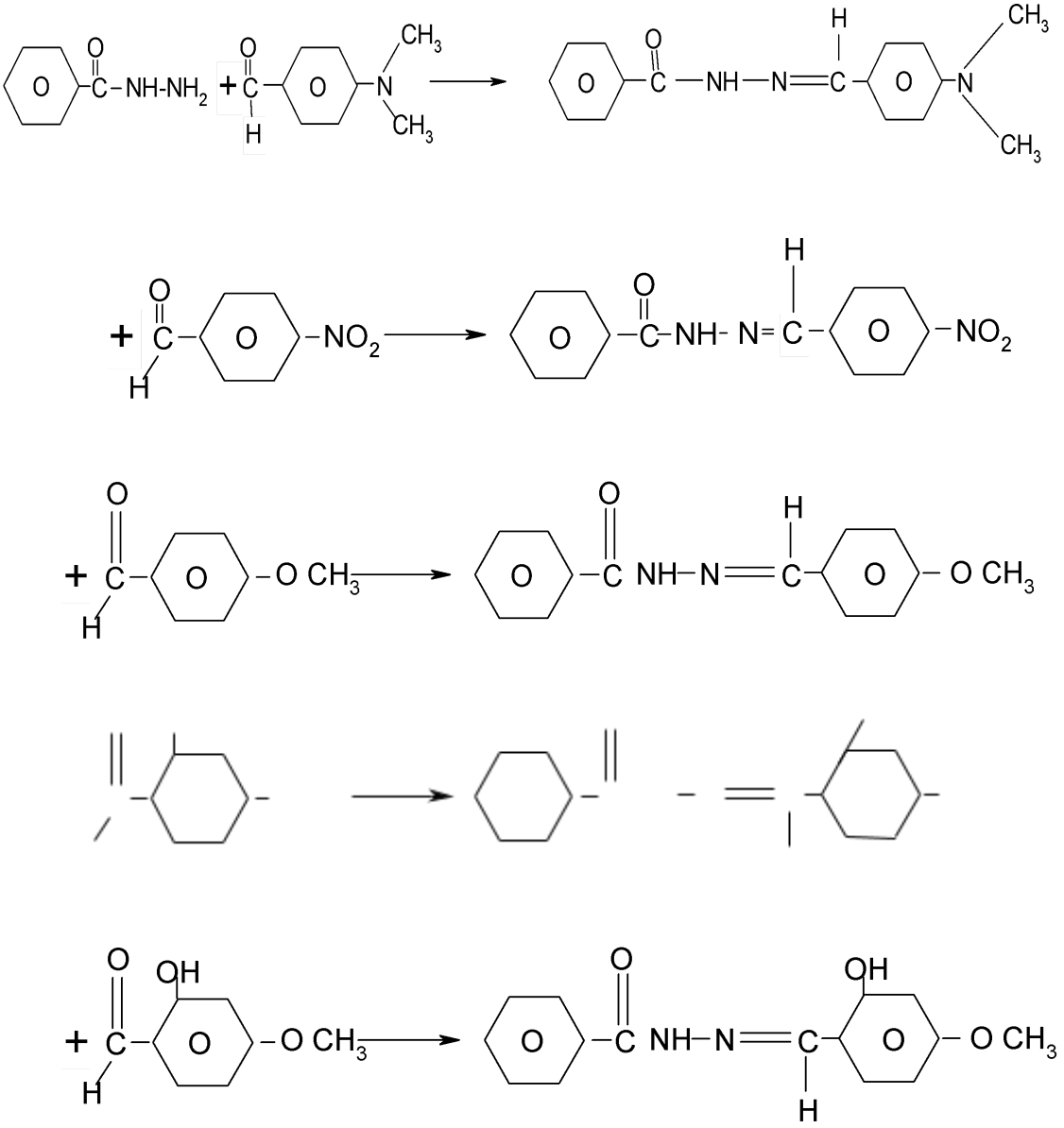
General method:

A mixture of compound (1) (2.2 gm, 0.01 mole) and the appropriate aromatic substituted aldehydes namely, p-N,N-dimethylamino benzaldehyde, P-Nitro benzaldehyde, ,p- methoxy benzyldehyde , 2,4-di methoxy benzyldehyde and 2-hydroxy -4-methoxy benzaldehyde (0.012 mole) was refluxed in absolute ethanol (20 ml) for 5 hours. The reaction mixture was concentrated, cooled and the formed precipitate was filtered off, dried and then recrestallized to give the title compounds ((I – IV) respectively, Table (1.

-:Results and discussion

In the present work, benzoic acid hydrazide (1), which was in our department, .was used as the key intermediate for further synthesis

Condensation of carbohydrazide compound (1) with aromatic aldehydes in absolute ethanol afforded the corresponding Schiff's bases (I – IV) (Scheme 1, Tables 1 and .(2



(Table 1: some physical properties for the synthesized compounds (I - VI

No. of com .p	***Molecular formula***	***Name of .comp***	***State of .compd***	***% yield***	***M.P in C^0***	***Rate flow and solvent (methanol: (benzene 2:8***
I	*$C_7H_8N_2O$ (136)*	*Benzoic acid hydrazide*	*White solid*	*80*	*112-110*	*0.49*
II	*$C_{16}H_{17}N_3O$ (267)*	*P-N,N-dimeth yl aminobenzald hyde-(benzoic acid) hydrazone*	*Yellow solid*	*85*	*217-215*	*0.52*
III	*$C_{14}H_{11}N_3O_3$ (269)*	*P-nitro benzaldehyde-(benzoic acid) hydrazone*	*Pale yellow solid*	*83*	*252-250*	*0.16*
IV	*$C_{15}H_{14}N_2O_3$ (254)*	*P-methoxy benzaldehyde-(benzoic acid) hydrazone*	*Yellow solid*	*82*	*220-218*	*0.54*
V	*$C_{16}H_{16}N_2O_3$ (284)*	*dimethoxy-2,4 benzaldehyde-(benzoic acid) hydrazone*	*Yellow solid*	*85*	*232-230*	*0.59*
VI	*$C_{15}H_{16}N_2O_3$ (270)*	*hydroxyl-4- -2 methoxy benzaldehyde-(benzoic acid) hydrazone*	*White solid*	*87*	*263-216*	*0.68*

(Table 2: Spectral data (I.R) for the synthesized compounds (I – VI

.No. of comp	***(Spectral data (I.R***
I	*(KBr,cm^{-1}):3310,3190(NH_2 sym.,asym.,-stretch),1650(C-O)*
II	*(KBr,cm^{-1}):3251(NH),2984(CH),1672(C-O),1620(C=N)*
III	*KBr,cm^{-1}):3045(NH),2964(CH),1671(C-O),1600(C=N) and) (1514,1327(NO_2*
IV	*(KBr,cm^{-1}):3190(NH),3000(CH),1670(C-O),1630(C=N)*
V	*(KBr,cm^{-1}):3200(NH),2968(CH),1664(C-O),1650(C=N)*
VI	*(KBr,cm^{-1}):3400(OH),3200(NH),2968(CH),1664(C-O),1580(C=N)*

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