Egypt. J. Chem. **54**, No. 5, pp. 579- 593 (2011)

2- (3, 4- Dimethylphenyl - 3- [3, 4-Dichloro (or 3, 4-Dimethyl) Benzoyl])-Propanoic Acids as Precursors in the Synthesis of Some Heterocyclic Compounds

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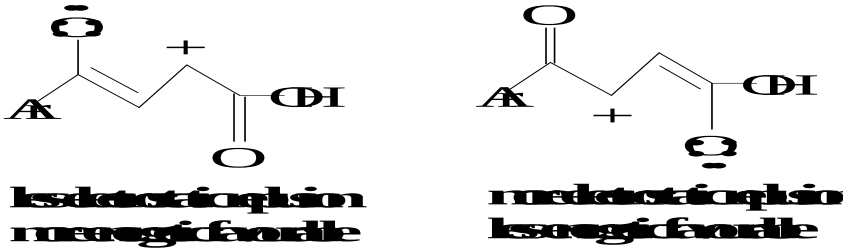
3-(3,4-DICHLORO (or 3,4-dimethyl)benzoyl)] prop-2-enoic acids 1 react with o-xylene and *p*-xylene under Friedel-Craft's reaction conditions giving acids 2 or 3, respectively. They were converted into the corresponding pyridazinone 4 derivatives upon treatment with N_2H_4 in boiling ethanol . The pyridazine derivatives 9,10,11 can be synthesized as a pro-drug due to their more potent and less peripheral effects than non-acidic or weakly acidic NSAIDs. Also, triazolopyridazine, oxazinone and furanone were also investigated.

Keywords: 3-Aroylprop-2- enoic acids, Pyridazinone, Triazolopyridazine, Furanone, Pyridine, Oxime and Oxazinone.

3-Aroyl prop-2-enoic acids– have two electrophilic reactions sites. Therefore, when they were allowed to react with nucleophiles, they show reactivity typical to α, β-unsaturated carbonyl derivatives or α, β-unsaturated acids. The reactivity of 3-aroylprop-2-enoic acids toward aromatic hydrocarbon, was investigated[1-4] which behave as α, β-unsaturated carbonyl rather than α, β-unsaturated acid, this is due to stability of the intermediate carbocation.



Albeit A lot of work has been done on this subject yet more work is needed to make the results about reactivity are more clear. The authors sought to investigate the behaviour of 3-(3,4-dichloro/ or 2,4-dimethylbenzoyl) prop-2-

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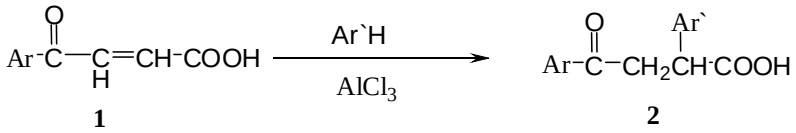
enoic acid 1 with o-xylene and *p*-xylene under Friedel-Craft's reaction conditions yielded acids 2 and 3-



1 **2**

Ar	Ar`
a) $C_6H_3.Cl(3,4)$	$C_6H_3(CH_3)_2(3,4)$
b) $C_6H_3.CH_3(3,4)$	$C_6H_3(CH_3)_2(3,4)$
	$C_6H_3(CH_3)_2(2,5)$

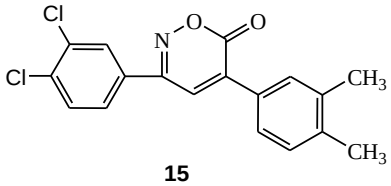
Interaction of acids 2 with N_2H_4 in presence of boiling ethanol, yielded the corresponding pyridazinone 4 derivatives. Aiming to create more positional reactive sites that more lipophilic in pro-drug pyridazine derivatives .They are more potent and have less peripheral effects. Non-acidic or weakly acidic NSAIDs were the attention of medicinal chemists as they preferentially act by inhibiting COX-2 and possessed lower incidence of gastric ulcers than acidic NSAIDs which inhibit both COX-I & COX-II enzymes like indomethacin & aspirin.The interesting pharmacological activity is displayed by pyridazine derivatives which demonstrated in recent year. The growing number of papers describes the development of several pyridazine-based drugs and pharmacological tools[5], drugs acting on the cardiovascular system[6-9], as agrochemicals[10] and wide range of biological action[11]. Several studies indicate that (NH) group adjacent to (C=O) group in the azine system may be an essential structural requirement in the binding of 3(2H)-pyridazinones to a variety of biological receptors[12]. Although all structural studies on this nucleus have been shown that 3(2H) pyridazinone exist in keto form[13], but they involve ambident rings that possess a tautomeric form which is lack regio control as in the products 9 &11. Ulerogenicity[14-16]. Several authors use pyridazinone as starting material in which the position-2 is blocked by group, such as ($PhCH_2$, Me, Ph) but it was difficult to remove these groups in the true sense and so their use is limited to block the enolisable carbonyl group.

Discussion

In terms of these above aspects the authors have synthesized some pyridazine derivatives which bear phenyl, thioxo, chloro & ester group *via* the interaction of the phenyl diazonium chloride, P_2S_5, $POCl_3$ and AC2O with pyridazin-3(2H)-one 4 to give 5, 6, 7, 8, respectively (Scheme 1) aiming to Non-acidic or weakly acidic pyridazine and increase their biological activity. Treatment of acids 2 with phenyl hydrazine in boiling butanol 3 h give a good yield of compounds 5. Also, in this work the authors solve this problem of lack regio control by protection of the NH group by carbamoyl moiety, which is easily deprotected by alkali or acids, so we have synthesized the pyridazin-3(2H)-one 9, 10, 11 by

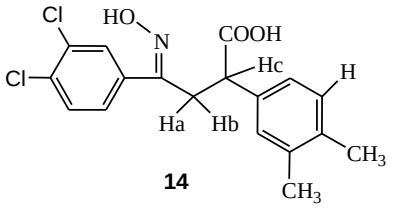
treating acid 2 with semicarbazide, thiosemicarbazide and carbonic dihydrazide respectively as in Scheme 2. The authors offer explanation for no ring closure which occurs in case of thiosemicarbazide, this seems to be reasonable due to the weak acidity of (NH) group which renders it unable to protonate (OH) of carboxylic group and converted it to good leaving group as with carbamic acid hydrazide of carbonic acid dihydrazide.

Fortunately, formation of compound 11, triazolopyridazine derivative is an ideal heterocyclic system for antifungal activity[17]. Morever,the furanone ring system, also known as butyrolactone or butenolide, is widely recognized compounds of natural products exhibiting a wide range of interesting biological activities. Different classes of synthetic furanones possess an extensive spectrum of pharmacological activities. In particular, compounds bearing 2(3H)-furanone ring, are known to exhibit important activities such as antibacterial, antifungal, antiviral, anticancer, anti-inflammatory, vasodilating and anticonvulsant[18-22]. The current work describes the synthesis of 2(3H)-furanone with expected anti-myco bacterial activity by treating acids 2 with AC_2O[23,24] to yield the corresponding furanone 12 which is confirmed chemically by interaction with carbon nucleophiles namely m-xylene in presence of anhydrous $AlCl_3$ under Friedel Crafts' conditions to afford adduct 1,4-diketone 13 which is considered as key starting material for synthesis a new pyridazine derivatives. Treatment of acids 2 with hydroxylamine hydrochloride in presence of pyridine afforded oxime 14 & oxazine derivative 15. (Scheme 1).The structure of oxazinones 14& 15 is substantiated spectroscopically and chemically, their infrared spectrums shows absorption bands corresponding to $_{\nu}C=O$, the higher value of absorption for the carbonyl group is a good evidence for the existence of the oxazinone ring system. Further support for the assigned structure of 15 was gained from the ^1H NMR revealed at δ= 6, doublet signals correlated with olefinic proton which is in accordance with structure 15 of the appearance of extra multiplet signals at 3.7-4.2 corresponding to (CH_2-CH) moiety and singlet at 11.2 corresponding to (OH groups) confirm that oxime 14 exiss.



15

olefinic proton



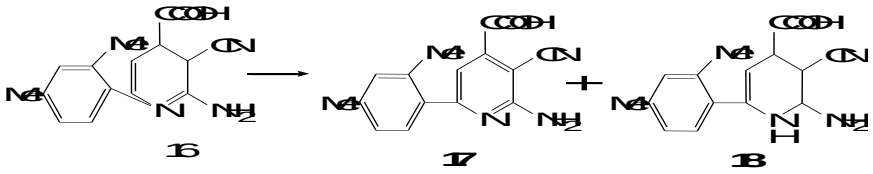
14

H_a, H_b diasterisotopic protons

The present work also reports on the behaviour of acid 3a towards malononitrile in the presence of ammonium acetate as catalyst[25] on boiling

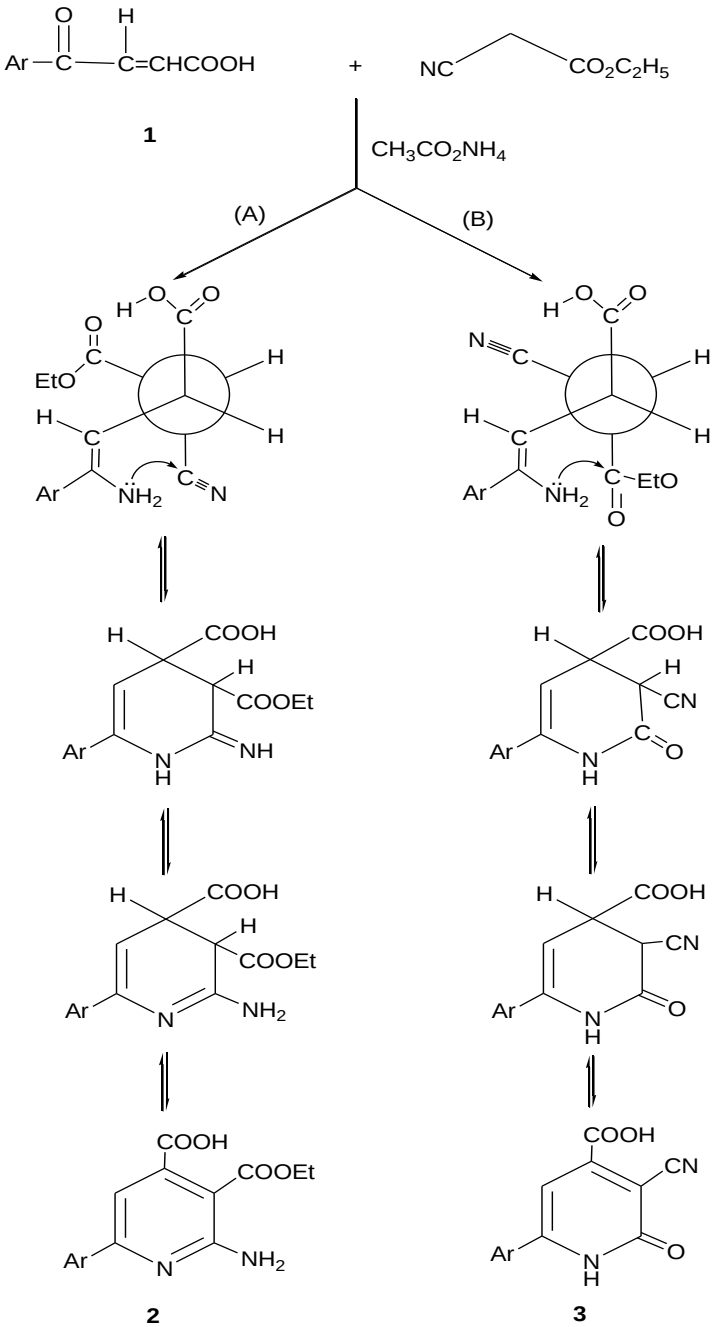
water bath,t didnot give the expected product, 2-amino-3- cyano carboxy-6-(3,4-dimethyl)phenyl-3,4-dihydropyridine 16 but it gave a yellow crystal of 2-amino-3-cyano-4-carboxy-6-(2,4-dimethyl) phenyl pyridine 17 and colourless crystal of 2-amino-3-cyano-4-carboxy-6-(2,4-dimethyl)phenyl-1,2,3,4-hydropyridine18.

The authors approach explanation that malononitrile on acid 3a undergoes Michael addition, followed by cyclization to give the expected and not isolated product, 2-amino-3-cyano carboxy-6-(3,4-dimethyl)phenyl-3,4-dihydropyridine 16 that the 2 molecules of it can be dehydrogenated to give 17 at expense of the other molecule to give product 18.



Also,to synthesize e compound 17 as sole product and to confirm the above reaction chemically, this occurred by the treatment of the acid 3a with malononitrile in butanol 7 h to afford a yellow crystal of 17.

On the other hand,the isolation of nicotinate derivative 19 as a major product when acid 3a was allowed to react with ethylcyanoacetate in the presence of ammonium acetate on water bath afforded 2-amino-3-ethoxy carbonyl-4-carboxy-6-(2,4-dimethyl) phenylpyridine 19 and 3-cyano-4-carboxy-6-(2,4-dimethyl)phenylpyridin-2-one 20 which explained as follows: in conformation (A) the nitrile group on one asymmetric carbon lies between a group of small size (viz.H) and a group of large size (CH= on the other asymmetric carbon) Both COOH and COOEt are gauche to each other and can do intramolecular hydrogen bonding that makes the more stable conformation, *i.e.* the preferred lowest energy conformation, it $C(NH_2)$-Ar) needs a lower activation energy and can undergo nucleophilic attack on the nitrile group by the nitrogen of the amino moiety more readily than conformation (B). The formation of 19 and 20[26].


Ar
C
O
H
C=CHCOOH
1
+
NC
CO2C2H5
CH3CO2NH4
(A)
(B)
EtO
NH2
C≡N
COOH
COOEt
NH
CN
EtO
2
3
Ar = C6H4-Br :4

Scheme 1

Scheme 2

Experimental

All melting points are uncorrected. Elemental analyses were carried out in the Microanalytical Center, Cairo University, Egypt. IR spectra were recorded in (KBr) disks on Shimadzu FTIR 8101Pe and ^{1}H-NMR spectra recorded on a Varian 300 MHz in ($CDCl_3$) or (DMSO-d_6) as solvents, (chemical recorded on Shimadzu GCMS-QP-1000EX mass spectrometer at 70 eV) Homogeneity of all compounds synthesized was checked by TLC. Characterization data of the various prepared compounds are given in Table 1.

2-(3,4-Dimethyl)-phenyl-3-(3,4-dichloro and\or 3,4-dimethyl) benzoyl propionic acids (2,3)

A solution of β-(3,4-dichloro and or 2,3-dimethyl)benzoyl acrylic acids 1 (0.01 mol) in o-xylene (50 ml) was treated with anhydrous aluminium chloride (0.04 mol) and the mixture was heated on the water bath for 10 hr. Then the mixture was treated with ice\HCl. The organic layer was washed with water, and the excess solvent was removed by steam distillation. The organic material was extracted by ether. The ethereal layer was washed by 10% aq Na2CO3 solution, and was acidified by dil HCl. The solid was separated out, filtered off, dried and recrystallized from the proper solvent to afford 2 and 3. IR Spectra for compounds 2 and 3 exhibit $\nu_{oH(b)}$ 3350, ν_{CHAr} 3050, ν_{CHAli} 2950, ν_{CO} 1710-1680 cm^{-1}. ^{1}H-NMR spectrum for 2a in (DMSO) δ 2.45(s,6H), 3.1 (2dd, 2H, diasterotopicprotons J=15.2 J=7.7), 3.9 (dd,1H,CH-COO J=7.7), 6.8-7.8 (m,6H), 11.2 (S,1H,COOH). EI-MS reveal molecular entity at 351 corresponding to molecular ion peak.

4-(3,4- Dimethyl) phenyl -6- (3,4- dichloro) phenyl -2, 3, 4, 5- tetrahydro -3(2H) pyridazinone (4)

A mixture of 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro) benzoyl-propionic acid 2 (0.01 mol) and hydrazine hydrate (0.01 mol) was heated under reflux in butanol (30 ml) for 3 hr. The reaction mixture was concentrated. The solid was separated out, filtered off, dried and recrystallized from the proper solvent to afford the pyridazinone 4. IR Spectrum for compound 4 exhibits $\nu_{NH(b)}$ 3350, ν_{CHAr} 3050, ν_{CO} 1670 cm^{-1}. ^{1}HNMR spectrumfor 4 in (DMSO) δ 2.45(s,6H), 3.1 (2dd, 2H, diasterotopic protons J=15.2, J=7.5), 3.7 (dd,1H,CHCO, pyridazinemoiety J=7.5), 6.87.8 (m,6H), 13.2(S,1H,NH).

2- Phenyl- 4- (3, 4- dimethyl) phenyl -6- (3, 4-dichloro)phenyl-2,3,4,5-tetrahydro 3(2H)-pyridazinone (5)

A mixture of 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro) benzoyl-propionic acid 2 (0.01 mol) and phenyl hydrazine hydrate (0.01 mol) was heated under reflux in butanol (30 ml) for 3 hr. The reaction mixture was concentrated. The solid was separated out, filtered off, dried and recrystallized from the proper solvent to

afford the pyridazinone 5. IR spectrum for compound 5 exhibits ν_{CHAr} 3050, ν_{CO} 1670cm^{-1}. ^{1}H-NMR spectrum for 5 in(DMSO) δ 2.45 (s,6H), 3.1 (2dd,2H, diasterotopicprotons J=7.7), 3.7(dd,1H,CH-CO, pyridazine moiety J=7.7), 7.17.9 (m,11H).

4-(3,4-Dimethyl) phenyl-6-(3,4-dichloro)phenyl-2,3,4,6-tetrahydro-pyridazin-3-thione (6)

A mixture of pyridazinone (4) (0.01 mol) and P_2S_5 (0.01 mol) was heated under reflux in xylene (30 ml) for 2 hr. The reaction mixture was filtered off on hot, then left to cool, the solid was separated out, filtered off, dried and recrystallized from the proper solvent to give pyridazin-3-thione (6). IR ν_{NH} 3220, ν_{CHAr} 3050, ν_{SH} 2300, $\nu_{C=S}$ 1230 cm^{-1}. ^{1}H-NMR (DMSO) δ 2.45(s,6H),2.9 (2dd, 2H, diasterotopicprotons J=15.2), 3.4 (dd, 1H,CH-C = S,pyridazine moiety), 7.3-7.9 (m,6H).

4-(3,4-Dimethyl) phenyl-6-(3,4-dichloro)phenyl-3-chloro-4,5-dihydropyridazine (7)

A mixture of pyridazinone (4) (0.01 mol) and PCl_5 (0.01 mol) in $POCl_3$ (5 ml) was heated on the boiling waterbath for 1 hr. The reaction mixture was poured on ice after cooling. The separated solid was filtered off, dried and recrystallized from the proper solvent to afford chloro pyridazine (7).). IR ν_{CHAr} 3050, ν_{CHAli} 2886 cm^{-1}. ^{1}H-NMR in (DMSO) δ 2.5(s,6H), 3.1 (2dd, 2H, disterotopicprotons J=15.2),3.7(dd,1H,CH-)[pyridazine moiety],7.17.9(m,6H)

3-Acetoxy-4-(3,4-dimethyl) phenyl-6-(3,4-dichloro) phenyl-4,5-dihydro pyridazine (8)

A mixture of pyridazinone (4) (0.01 mol) and acetic anhydride (15 ml) was refluxed for 1 hr on the water bath, the reaction mixture was poured on water, left overnight. The separated solid was filtered off, dried and recrystallized from the proper solvent to afford acetoxy pyridazine (8). IR ν_{CHAr} 3050, ν_{CHAli} 2886 ν_{CO} 1770 cm^{-1}. ^{1}H-NMR in (DMSO) δ 2.3(s,9H), 3.1 (2dd, 2H, disterotopicprotons J=15.2 J=7.7), 3.7 (dd,1H,CH-) [pyridazine moiety], 7.17.9 (m,6H).

2-Carbamoyl-4-(3,4-dimethyl) phenyl-6-(3,4-dichloro) phenyl-3(2H)-pyridazinone (9)

A mixture of 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro) benzoyl propionic acid (2) (0.01 mol) and semicarbazide (0.01 mole) in pyridine (20 ml) was heated under reflux for 3 hr. The reaction mixture was left to cool then poured on ice/HCl. The separated solid was filtered off, dried and recrystallized from proper solvent to give the pyridazinone derivatives (9). IR of 9 $\nu_{OH,NH}$ 3360, 3230, ν_{CHAr} 3050, ν_{CO} 1680, 1660 cm^{-1}. ^{1}H-NMR of 9 in (DMSO) ν2.1 (s, 6H), 3.2 (2dd, 2H, diasterotopic protons J=15.2 J=7.7), 4 (d.d, 1H, CH-CO J=7.7), 7-7.5 (m, 6H, ArH), 11.3 (s, 2H, NH_2).

2-(3,4-Dimethyl)phenyl-3-(3,4-dichloro)benzoylthiosemicarbazone propionic acid (10)

A mixture of 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro) benzoyl propionic acid (2) (0.01 mol) and thiosemicarbazide (0.01 mol) in pyridine (20 ml) was refluxed for 3 hr. The cooled mixture was poured into ice-cold dilute hydrochloric acid. The separated solid was filtered off, dried and recrystallized from proper solvent to give the thiosemi-carbazone derivative (10). IR of 10 ν_{OH} 3460, ν_{NH} 3260, ν_{CHAr} 3050, ν_{CHAli} 2880, ν_{CO} 1705, $\nu_{C=S}$ 1210 cm^{-1}. ^{1}H-NMR of 10 in (DMSO) ν 2.1 (s, 6H), 3.1 (2dd, 2H, diasterotopic protons J=15.2 J=7.7), 3.8 (d.d, 1H J=7.7), 7.1-7.6 (m, 6H, ArH), 8.1 (s, 1H, NH), 8.8 (s, 1H, COOH), 10.58 (s, 1H, NH_2).

5-Oxo-1,2,4-Triazolo[4,3-b] 4-(3,4-dimethyl)phenyl-6-(3,4-dichloro) phenyl-3(2H)-pyridazinone (11).

A mixture of 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro) benzoyl propionic acid 2 (0.01 mol) and carbonic acid dihydrazide (0.01 mol) in butanol (30 ml) was refluxed for 3 hr. The solid that separated after cooling, filtered off, dried and crystallized to afford the pyridazinone derivative (11).IR ν_{NH} 3450, ν_{NH} 3310, ν_{CHAr} 3060, ν_{CHAli} 2920, ν_{CO} 1670 cm^{-1}.^{1}H-NMR in (DMSO) ν 2.6 (s, 6H), 3.2 (2dd, 2H, diasterotopic protons J=15.2 J=7.7), 4.2 (d.d, 1H, CH-CO J=7.7), 7-7.6 (m, 6H, ArH), 11.3 (s, 1H, NH).

3-(3,4-Dimethyl) phenyl-5-(3,4-dichloro) phenyl-2(3H)-furanone (12)

A solution of the 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro)benzoyl propionic acid 2 (0.01 mol) in acetic anhydride (20 ml) was refluxed and/or heating on the waterbath for 1 hr. The solid obtained after concentration and cooling was crystallized from the suitable solvent to give the 2(3H)-furanone 12. IR ν_{CHAr} 3050, ν_{CHAli} 2920, $\nu_{C=O}$ 1770 cm^{-1} .^{1}H-NMR in (DMSO) ν 2.2 (s, 6H), 3.3 (s, 1H, CH-CO), 6.3 (s, 1H, olefinic proton), 7-7.8 (m, 6H, ArH).

1,2-Bis [(3,4-dimethyl)phenyl]-4-(3,4-dichloro) phenyl butane-1,4-dione (13)

A solution of furanone 12 (0.01 mol) in the aromatic hydrocarbon (o-xylene) (50 ml) was treated with anhydrous aluminium chloride (0.04 mol) and the mixture was heated on the waterbath for 3 hr. The reaction mixture was left at room temperature for 24 hr after decomposing the reaction mixture on ice/HCl. The excess solvent was removed by steam distillation. The separated solid was filtered off, dried and crystallized to afford butane-1,4-dione 13.IR ν_{CHAr} 3060, $\nu_{C=O}$ 1720-1690 cm^{-1}. ^{1}H-NMR in (DMSO) ν2.1-2. 3 (s, 12H), 3.2(2dd,2H diasterotopic protons J=15.2 J=7.7), 4.2 (d.d, 1H, CH-CO J=7.7) , 7.3-7.8 (m,9, ArH).

2-(3,4-Dimethyl)phenyl-3-(3,4-dichlorobenzoyl oxime) propionic acid (14)

A mixture OF 2-(3,4-dimethyl)phenyl-3-(3,4-dichloro) benzoyl pronionic acid (2) (0.01 mol) and hydroxyl amine hydrochloride (0.015 mol) in pyridine (10 ml) was heated under reflux for 3 hr. The reaction mixture was poured on

ice/HCl after cooling. The separated solid was filtered off, dried and recrystallized from the proper solvent to afford 2-(3,4-dimethyl) phenyl-3-(3,4-dichloro) benzoyloxime propionic acid (14). IR ν_{OH} 3460, ν_{CHAr} 3050, ν_{CHAli} 2880, ν_{CO} 1705cm^{-1}. ^{1}H-NMR in (DMSO) ν2.1 (s, 6H), 3.7 (2dd, 2H, diasterotopic protons J=15.2 J=7.7), 4.1 (d.d, 1H,methine proton J=7.7), 7.1-7.6 (m, 6H, ArH), 9.8 (s, 1H, COOH), 11.18 (s, 1H, OH).

3-(3,4-Dichloro phenyl)-5-(3,4-dimethyl) phenyl-1,2-oxazin-6-one (15)

Heating of 2-(3,4-dimethyl)pheny l-3-(3,4-dichloro) benzoyl oxime propionic acid (14) (0.01 mol) in an oil bath at 170°C for ½ hr, after cooling the solid obtained was crystallized from the proper solvent to afford 3-(3,4-dichloro)phenyl-5-(3,4-dimethyl) phenyl-1,2-oxazin-6-one (15). IR ν_{CHAr} 3050, ν_{CHAli} 2880, ν_{CO} 1745, cm^{-1}. ^{1}H-NMR (DMSO) ν2.1 (s, 6H), protons), 6.02 (s,1H,olefinic proton), 7.0-7.7 (m, 6H, ArH).

2-Amino-3-cyano-4-carboxy-6-(2,4-dimethyl)phenylpyrid-ine (17)

A solution of β-(2,4-dimethyl)benzoyl acrylic acid (3) (0.01 mol), malononitrile (0.01 mol) and ammonium acetate (0.05 mol) in butanol (30 ml) was refluxed for 8 hr. The separated solid was filtered off, dried and crystallized from the proper solvent to give pyridine (17) IR, ν_{OH} 3510 ν_{NH} 3220, ν_{CHAr} 3050, ν_{CHAli} 2920, ν_{CN} 2225, ν_{CO} 1700 cm^{-1}. ^{1}H-NMR in (DMSO) ν 2.1 (s, 6H), 7.1-7.6 (m, 4H, ArH), 8.9 (s, 1H, COOH), 10.87 (s, 1H, NH_2).

2-Amino-3-cyano-4-carboxy-6-(2,4-dimethyl)phenylhexahydro-pyridine (18)

A mixture of β-(2,4-dimethyl)benzoylacrylic acid (3) (0.01 mol), malono nitrile (0.01 mole) and ammonium acetate (0.05 mol) was heated on the boiling waterbath for 2 hr. The solid obtained was crystallized from the proper solvent to yield hexahydropyridine (18). IR of ν_{OH} 3480, ν_{NH} 3260, ν_{CHAr} 3050, ν_{CHAli} 2880, ν_{CN} 2225, ν_{CO} 1715 cm^{-1}. ^{1}H-NMR in (DMSO) ν2.1 (s, 6H), 3.4-3.6 (m, 3H,CH-CH-CH-) 4.5(bs,2H,NH2)5.7 (d,1H,NH j=8.4 (enamine systm), 5.8 (d, 1H, olifinic protons j=8.4), 7.1-7.6 (m, 3H, ArH), 8.8 (s, 1H, COOH).

2-Amino-3-ethoxycarbonyl-4-carboxy-6-(2,4dimethyl)-phenyl-pyridine(19) and 3-cyano-4-carboxy-6-(2,4-dimethyl)phenyl-2-pyridone(20)

A mixture of β-(2,4-dimethyl)benzoylacrylic acid (3) (0.01 mol) ethylcyanoacetate (0.01 mol) and ammonium acetate (0.05 mol) was heated on the boiling waterbath. The solid obtained was crystallized from the proper solvent to yield (19) and (20). IR of 19ν_{OH} 3477, ν_{NH} 3260, ν_{CHAr} 3050, ν_{CHAli} 2880, ν_{CO} 1745-1710cm^{-1}. ^{1}H-NMR of 19 in (DMSO) δ 1.5(t,3H,CH3j=7.5),2.1 (s, 6H), 3.8 (q, 2H,j=7.5), 5.5 (s, 1H, NH_2), 7.1-7.6 (m, 3H, ArH), 9.8 (s, 1H, COOH), 10.87 (s, 1H, NH_2), IR of 20ν_{OH} 3427, ν_{CHAr} 3050, ν_{CHAli} 2880, ν_{CN} 2230, ν_{CO} 1715-1680cm^{-1}. ^{1}H-NMR of 20 in (DMSO) ν2.1 (s, 6H), 5.8 (d, 1H, olifinic protons), 7.1-7.6 (m, 3H, ArH), 9.8 (s, 1H, COOH), 12.23(s,1H,NH== OH).

TABLE 1. Characterization and physical data for synthesized compounds.

Comp. No.	M.p. °C	Solvent colour	Formula Mol wt	Analysis % Calc/Found C	H	N	Br/Cl/S
2	240 -2	Butanol White	$C_{18}H_{16}Cl_2O_3$ 351	61.54 61.32	4.56 4.41	– –	-/20.23/- -/20.11/-
3	210 -2	butanol	C20H22O3 310	77.42 77.38	7.09 7.12	-	-/-/-
4	160 -1	Benzene White	$C_{18}H_{16}Cl_2ON_2$ 347	62.2 62.0	4.6 4.4	8.07 8.86	-/20.46/- -/20.24/-
5	120 -1	Benzene Brown	C24H20Cl2N2O	68.1 68.0	4.7 4.5	6.6 6.4	-/16.7/- -/16.5/-
6	240 -2	Ethanol Yellow	$C_{18}H_{16}Cl_2N_2S$ 363	59.50 59.34	4.41 4.22	7.71 7.53	/19.56/8.81 /19.42/8.65
7	210 -2	Toluene Yellow	$C_{18}H_{15}Cl_3N_2$ 365.5	59.09 58.87	4.10 3.98	7.66 7.45	-/29.14/- -/28.96/-
8	120 -2	Benzene White	$C_{20}H_{18}Cl_2O_2N_2$ 389	61.69 61.48	4.63 4.41	7.19 7.04	-/18.25/- -/18.04/-
9	150 -2	Benzene White	$C_{19}H_{17}Cl_2O_2N_3$ 390	58.46 57.92	4.36 4.23	10.77 10.52	-/18.20/- -/18.00/-
10	190 -1	Benzene White	$C_{19}H_{19}Cl_2O_2N_3S$ 424	53.77 53.62	4.48 4.23	9.90 9.75	/16.74/7.55 /16.53/7.31
11	160 -1	Benzene White	$C_{19}H_{18}Cl_2O_2N_4$ 405	56.29 56.13	4.44 4.32	13.83 13.62	-/17.53/- -/17.32/-
12	138 -1	Petroleum 80-100°C White	$C_{18}H_{14}Cl_2O_2$ 333	64.86 64.72	4.20 4.00	– –	-/21.32/- -/21.12/-
13	80 -2	Petroleum 40-60°C Brown	$C_{26}H_{24}Cl_2O_2$ 439	71.07 70.85	5.46 5.29	– –	-/16.17/- -/16.00/-
14	170 -1	Toluene Yellowish-white	$C_{18}H_{17}Cl_2O_3N$ 366	59.02 59.00	4.64 4.53	3.82 3.71	-/19.39/- -/19.31/-
15	150 -2	Benzene White	$C_{18}H_{15}Cl_2O_2N$ 348	62.07 62.04	4.31 4.13	4.02 4.00	-/20.40/- -/20.21/-
17	180 -1	Petroleum 80-100□C Yellow	$C_{15}H_{12}N_3O_2$ 266	67.67 67.43	4.51 4.40	15.79 15.66	-/-/- -/-/-
18	165 -2	Petroleum 80-100°C Colourless	$C_{15}H_{19}N_3O_2$ 273	66.0 65.8	7.0 6.8	15.4 15.3	-/-/- -/-/-
19	110 -2	Petroleum 60-80°C	$C_{17}H_{18}N_2O_4$ 314	65.0 64.8	5.7 5.6	8.92 8.83	-/-/- -/-/-

	Brown

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(*Received* 6 / 3/ 2011;
accepted 13/10/ 2011)

استخدام مشتقات حميض 3 و4-داى ميثيل فنيل بنزويل بروبانويك فى تخليق بعض المركبات الخلقية غير المتجانسة

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يتضمن هذا البحث

1- تحضير بعض أحماض البروبيك الحاملة مجموعات الأريل والأريل (ناتج الإضافة (1)). وذلك من خلال معالجة حمض 3-(3،4- ثانى الكلور و 3،4 ثنا~ى الميثيل بنزويل) -2- البروبينك مع الأرثو- والميتا زيلين عن طريق فريدل كرافت وأيضاً مع الملونو نيتريل عن طريق إضافة مايكل للحصول على ناتج الإضافة الذى يستخدم لتحضير العديد من المركبات الغير متجانسة الحلقة مثل البيريدازينون والأكزازينون والفيورانون.
2- إجراء بعض التجارب على مشتقات البيريدازينون للحصول على مركبات أكثر فاعلية من NSAID.
3- إثبات المركبات المحضرة بأجهزة التحاليل الدقيقة مثل الأشعة تحت الحمراء والرنين المغناطيسى والكتلة الإكترونى.