# Synthesis of aromatic α- amino acids compounds

**Sh.A.Beheget .**
Dept.of chemistry . College of education , University of AL-Qadisyia , Iraq .

**Abstract**

The objective of this work is synthesis of derivatives α-amino acids be reaction glycine,alanine and Tyrosine in the presence of theα- naphthil led to produce α-naphthyl glycine , α- naphthyl Tyrosine and α-naphthyl phenyl alanine these compound indicate by different identification method .

**الخلاصة**

الهدف من البحث تحضير مشتقات حوامض امينيه اروماتية من عملية تفاعل احماض الامينيه مثل الكلاسين والانين والتايروسين بوجود الفا نفثيل تم الحصول على حوامض امنية اروماتية مثل الفانفثيل كلايسن والفانفثيل الانين والفانفثيل تايروسين مع اثبات الصيغ التركيبية لمركبات المحضره بالطرق الطيفية المختلفة .

## Introduction

William and Hoffman(1,2) method is the importantant for synthesis aromatic α – amino acids,first step of this method is condensation of the appropiate aldehyde with hydration of the condeneation product so obtained Weisse(3) considerably according to the aldehyde used, Majima and kotuke(4,5) who first preared the later compound from indol 3-aldhyde and hydantion.

The introdection of new solvents and catalysts for promoting the reaction between aldehyde and hydantion suggest new lines of aftacking the nrobln of synthesizing aliphatic α - amino by way of the hydanations . this aspect of the hydantoin . this asoect of the investingation is receiving attention(7,8).

## Experimental

All chemicals were of highest purity and used Infrared speatra were measured with test scan Shimaduz FTIR-8000 series , in the (4000-400) cm-1 range using KBr ,elemental analysis were carried out by micro analytical unit 1108 C.H.N .and used 1H n.m.r in CDCl3 test scan A-CL815 300MHz for the diagnosis of organic compounds .

The solvent method to preparation derivatives aromatic α- amino acids compounds α- naphthoin ( 0.01 mole ) was added to asoltion made upe of α-amino acid (0.0 1 mole) and sodium ethoxide (0.01mole) in ethanol (30ml) . the mixture was refluxed untill liberation all carbon dioxide and leave hot mixture hot after and for cyrystallizalion .after that purified the product by ethanol (9,10)

## Preparation of α- naphthion

( 26.5 gm ) of α- naphthaldehyde was dissolved in 100 ml of ethanol and ( 10gm NaCN in 50 ml water ) after refluxed for three hours . the solvent evaporated and crystallized from ethanol to give (12 gm) product of α- naphthion m.p (138- 139 CO) (11)

**Preparation of α- naphthil**

mixture of (1,44 gm α-naphthin and 20 gm CuSO4) in 30 ml pyridine and ( 10 ml ) water was refluxed for two hours . after cooled in crushed ice and crystallized from ethanol was giving ( 1.35gm ) of α-naphthil m.p(147-149Co)(12).

**Discussion**

the original method of William and Hoffman of effecting the condensation of aiona tic aldehydes with hydanationg by heating amixture of thes substauces in glacial acetic acid containing anhydrous sodium acetate may be modified with advoutay daring this work we obtained diffrel aromatic α- amino acid( glycine , alanine and tyrosine ) in the case of glycine the compound α - nahthyl glycine was obtainted to α(13) .

**Table ( 1 ) physical properties of the compounds**

| Comp. | Formula | Yield % | M.P CO |
|---|---|---|---|
| α- naphthon (a) | C22H16O2 | 80% | 138 CO |
| α- naphthil (b) | C22H14O2 | 90% | 186 CO |
| 2- naphthnil glycine(c) | C12H11NO2 | 70% | 246 CO |
| 2- naphthil alanine(d) | C13H13NO2 | 65% | 245 CO |
| 2- naphthil tyrosine(e) | C19H17NO3 | 50% | 250 CO |

**Tabl (2) characteristic I.R Absorbition bonds of compounds**

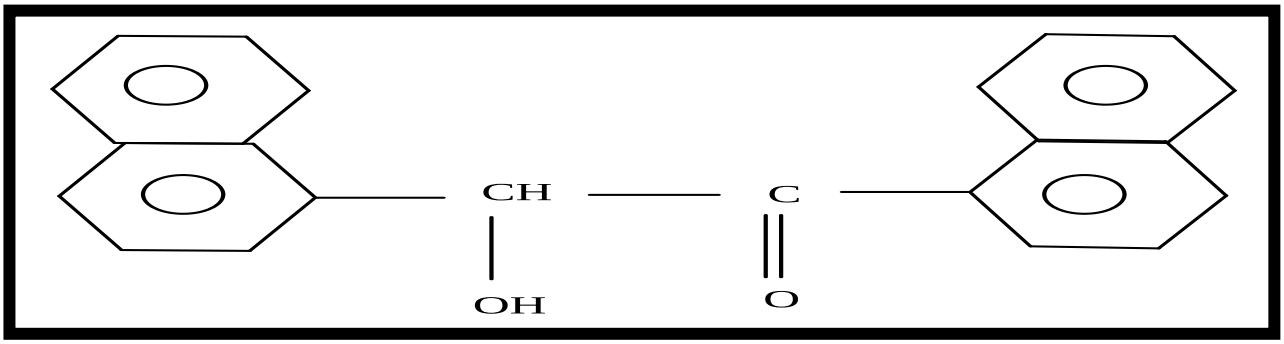
| Comp. | OHύ | ύ NH2 | ύC=O | ύC=C |
|---|---|---|---|---|
| a | ٣٥٠٠ | - | ١٦٤٠ | ١٦٠٠ |
| b | - | - | ١٦٤٠ | ١٦٠٠ |
| c | ٣٥٠٠ | ٢٨٧٥ | ١٥٨٠ | ١٦٥٠ |
| d | ٣٤٠٠ | ٢٨٧٥ | ١٥٧٠ | ١٦٥٠ |
| e | ٣٤٧٠ | ٢٨٧٥ | ١٥٨٥ | ١٦٥٠ |

**Table (3) characteristic N.M.R**

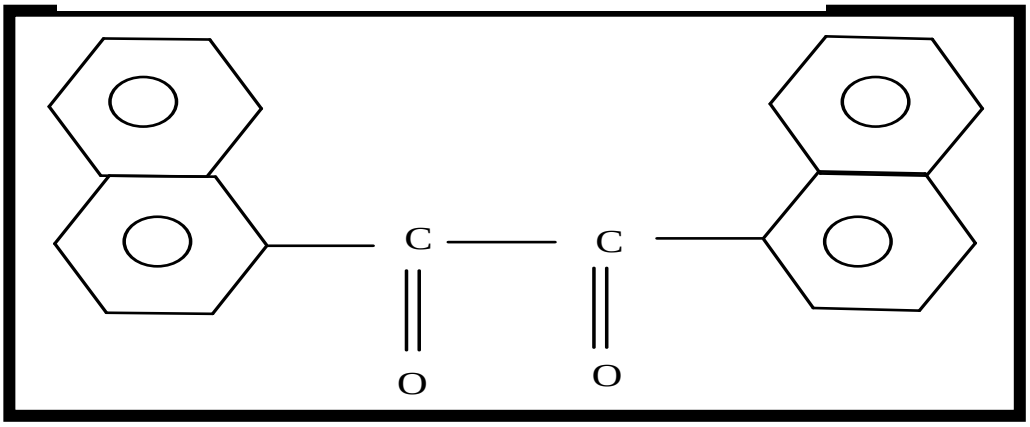
| Compound | H-N.M.R δ (ppm) DMSO١ |
|---|---|
| 2- naphthil Glycine (c) | 2.5(s) 1H amino acid ( C-H) ; 7.5(m) 7H (-C10H7) |

**Table (4) analytical results (C.H.N)**

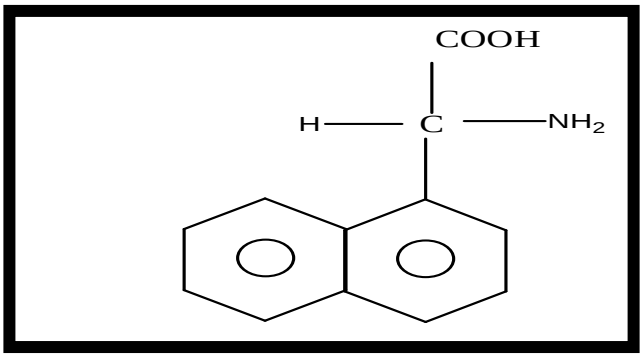
| Comp. | formula | Found<br>C | H | N |
|---|---|---|---|---|
| α- naphthon (a) | C22H16O2 | 84.615<br>84.3 | 5.128<br>5.00 | |
| α- naphthil (b) | C22H14O2 | 85.162<br>84.925 | 4.516<br>4.32 | |
| 2- naphtil Glycine (C) | C12H11NO2 | 71.64<br>71.61 | 5.472<br>5.52 | 6.965<br>6.86 |



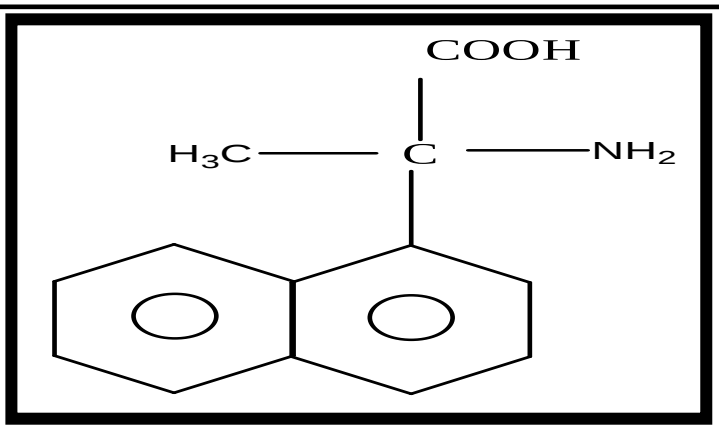

**α- naphthon(a)**



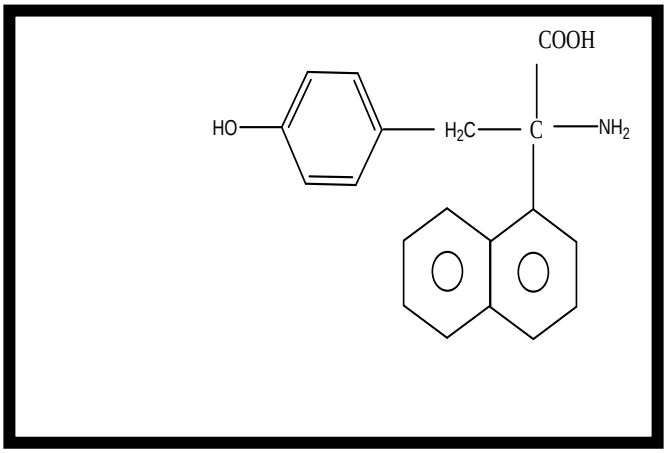

**α- naphthil(b)**




**2- naphthnil glycine(c)**




**2- naphthil alanine(d)**




**2- naphthil tyrosine(e)**

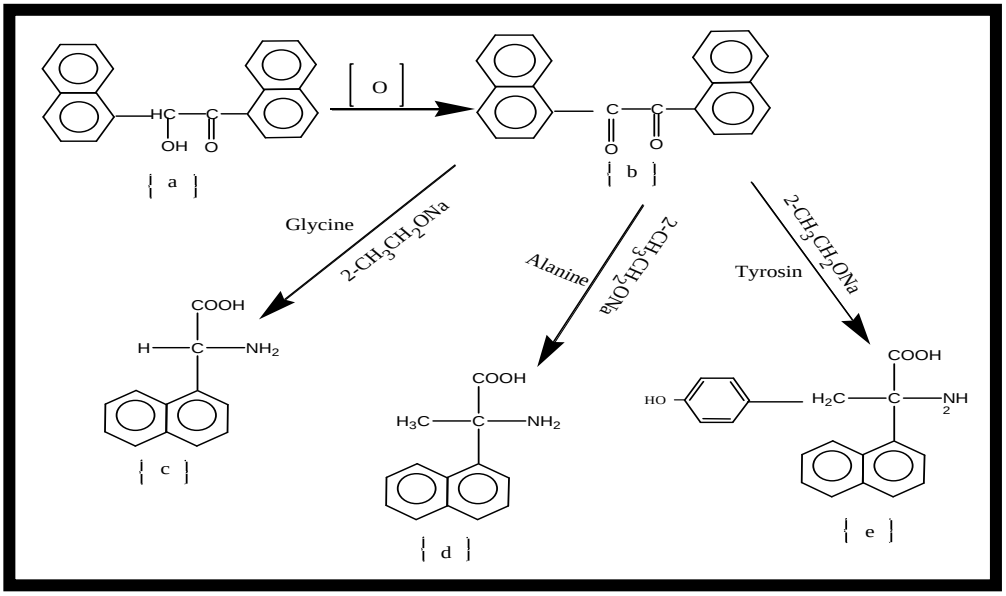



**Fig (1) preparation of the Glycin naphthil (c) , 2-naphthil Alanine (d) and 2-naphthil Tyrosin**

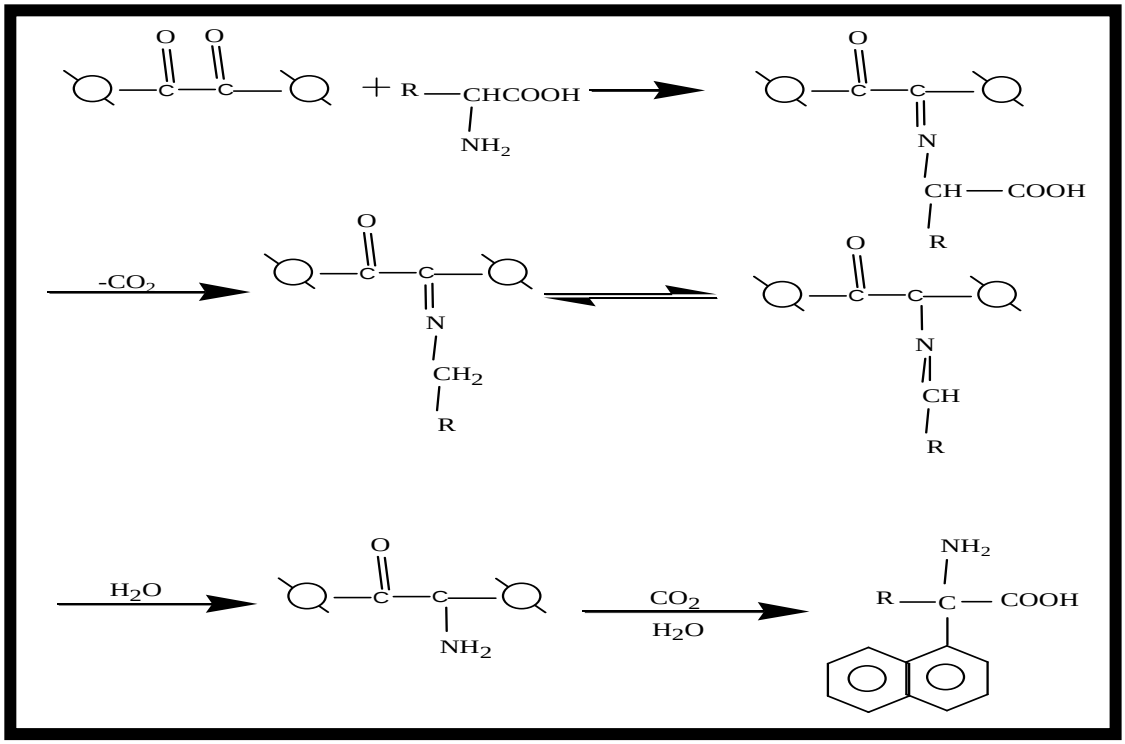
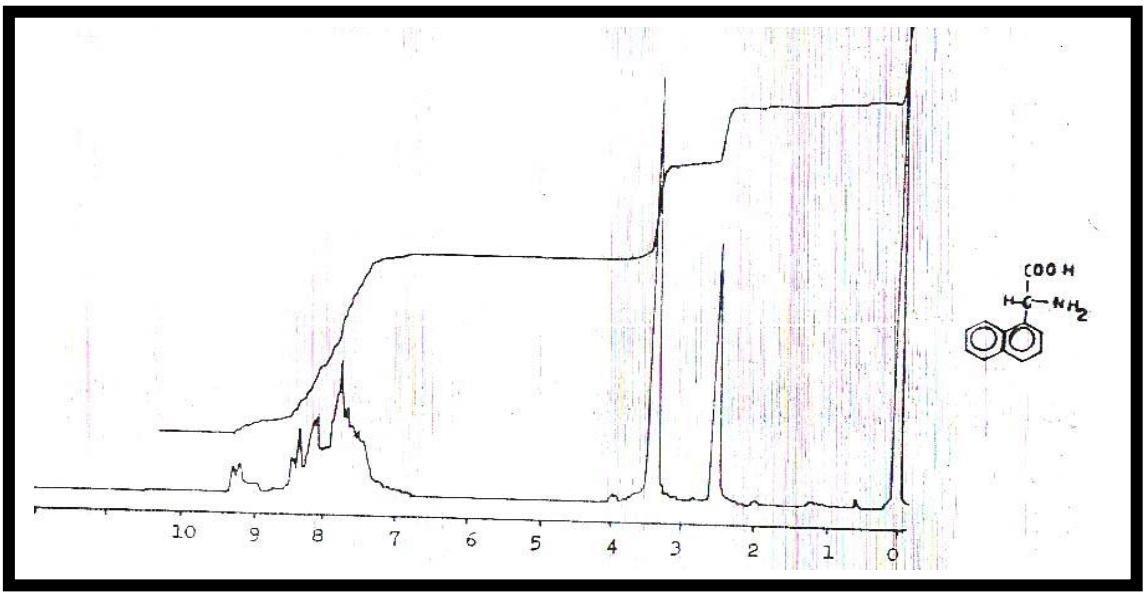
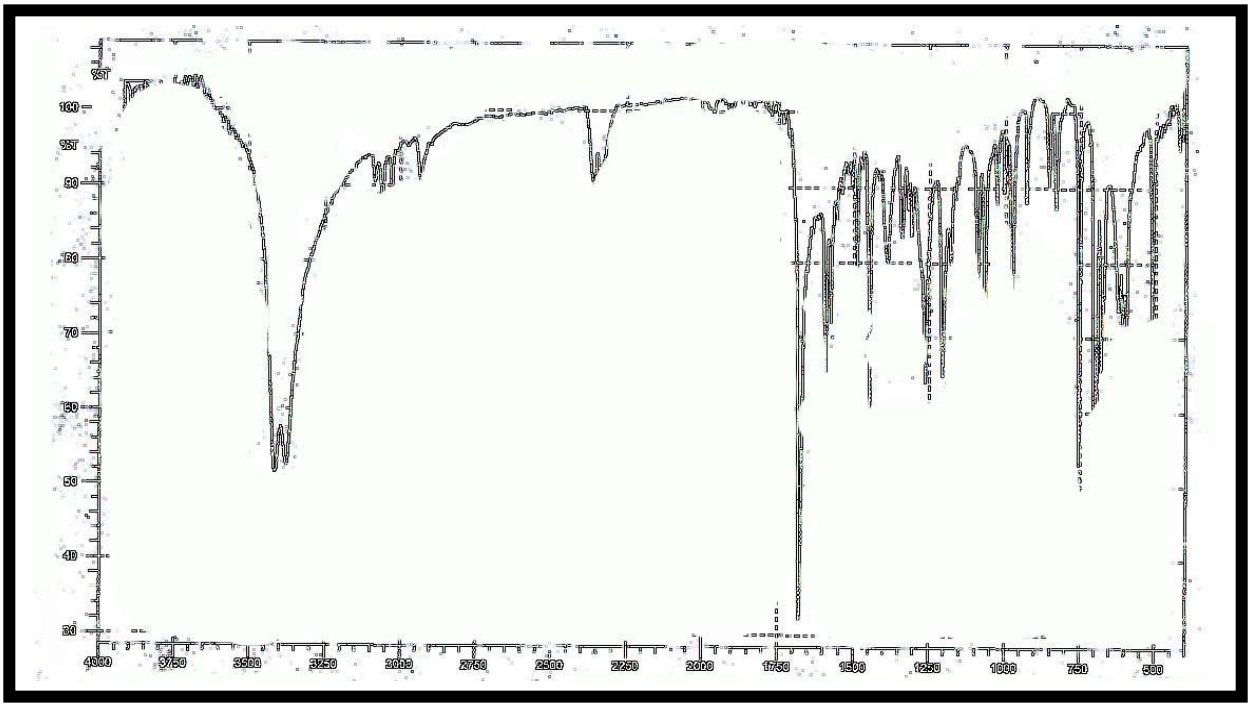


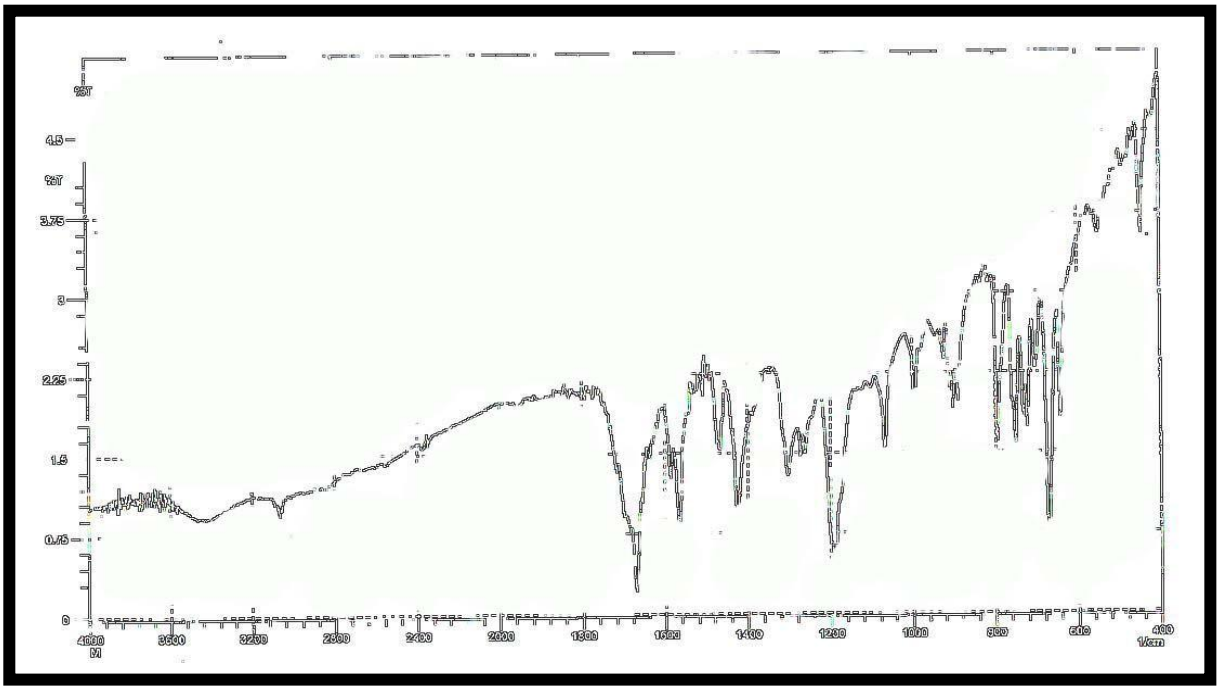

**Fig (2) Mechanical interaction α- amino acids with 2- naphthil**



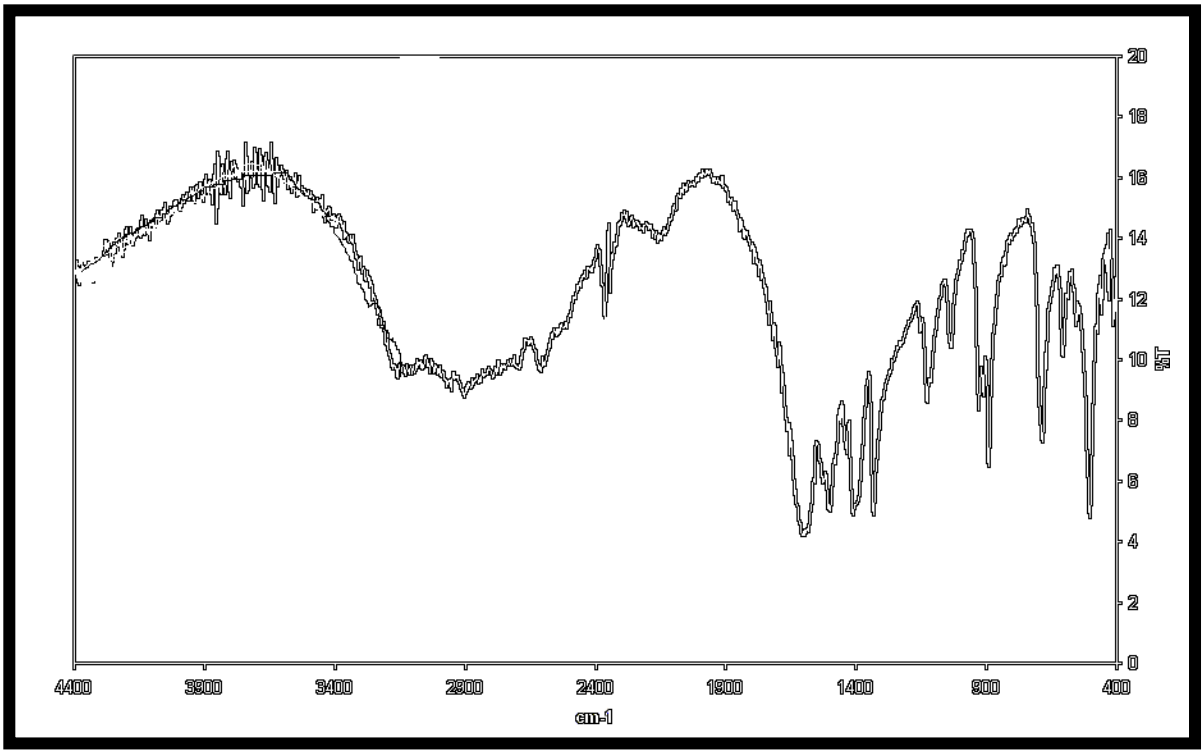

**N.M.R For 2- naphthnil glycine (c)**



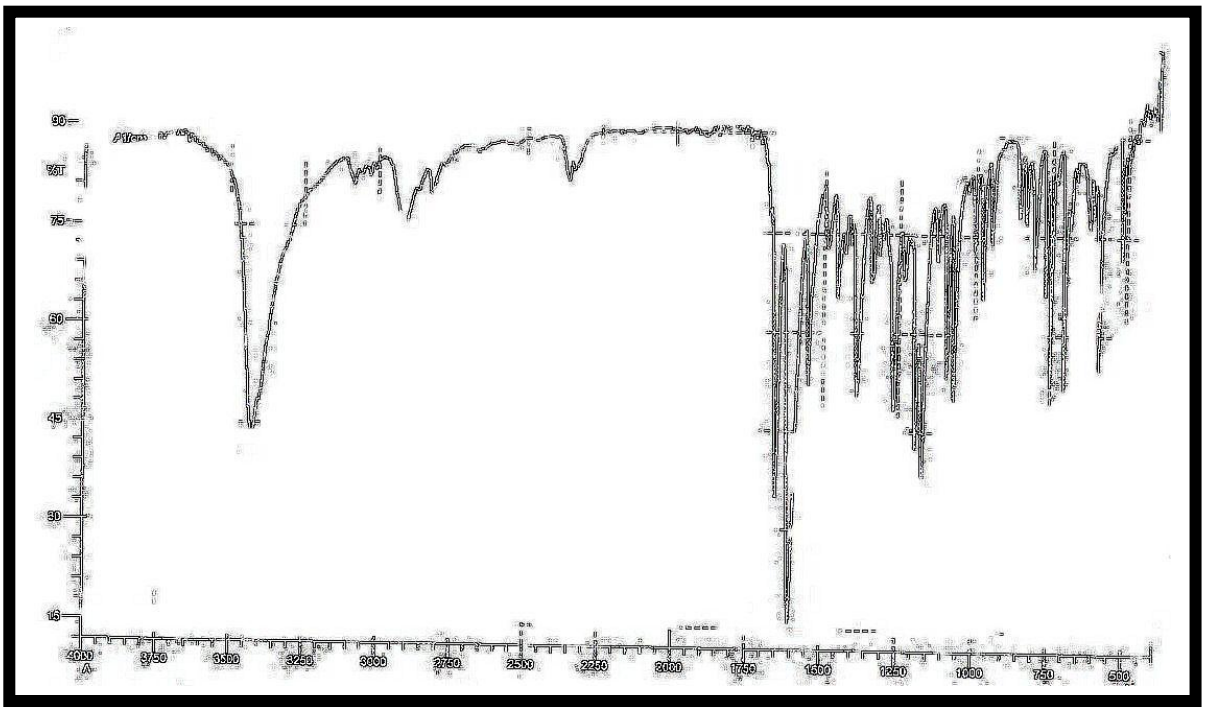
**I.R of α- naphthon(a)**



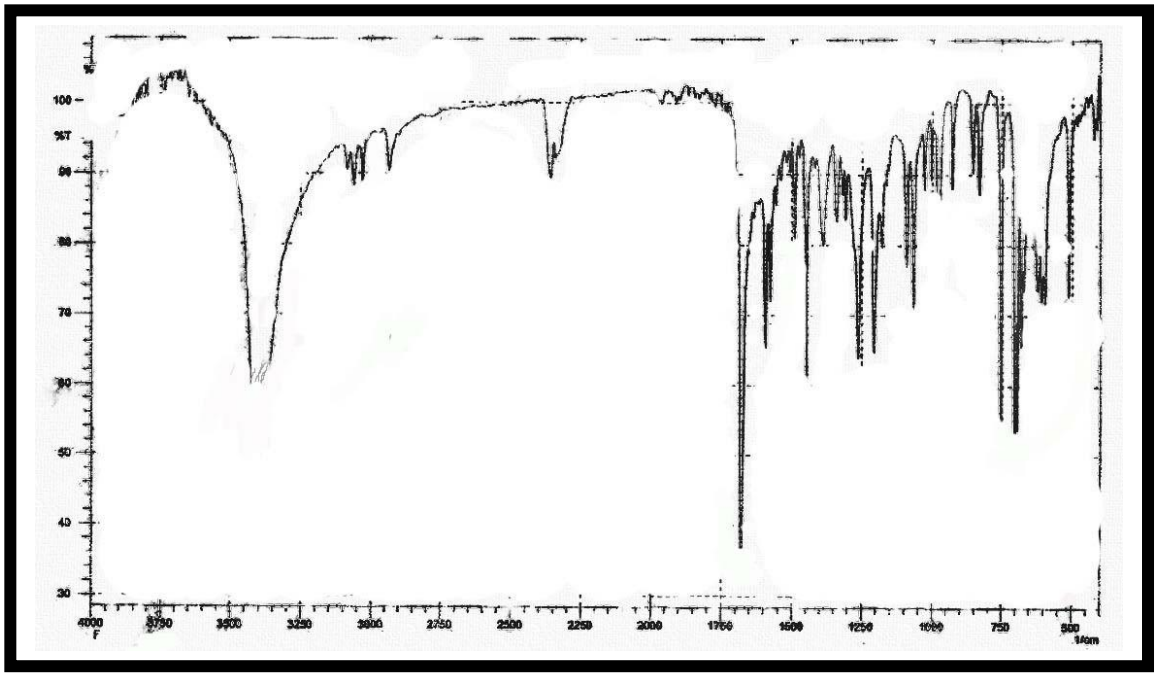
**I.R of α- naphthil(b)**




**I.R of 2- naphthnil glycine(c)**




**I.R of 2- naphthil alanine(d)**



**I.R of 2- naphthil tyrosine(e)**

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