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PHYTOCHEMICAL ANALYSIS OF *Ficus carica* LEAVES BY USING TECHNICAL METHODS

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ABSTRACT

This study aimed to investigate the phytochemical components of *Ficus carica* (leaves) using Gas chromatography- Mass spectrum (GC-MS) and Fourier transform infrared spectrophotometer (FTIR) techniques. The results of GC-MS reported 55 chemical compounds in leaves. The results of the FTIR appear the presence of 30 functional groups in this plant. More of these groups were alcohols, phenols, alkanes, alkyl halides, aldehydes, carboxylic acids, aromatics, nitro compounds and amines. It contain phytochemicals which may be useful for various herbal formulation as anti-inflamatory, anti-bacterial, anti-fungal Anticancer, Antioxidant and others.

Keywords: *Ficus carica*; leaves; GC-Mass; FTIR.

INTRODUCTION

Ficus caricaL. (familly. Moraceae), generally known as fig and it is a non-evergreen plants, inborn in the eastern Mediterranean zone, Where it has been cultivated for about 7000 years[1,2].

Leaves of fig are large, alternating, bright green in color. Leaves are lobed, with about 1-5 lobes, Coarse hair from the upper surface and fine hair from the lower surfac. Moisture of leaves, 67.6%; protein, 4.3%; N-free extract, 16.4%; ash, 5.3%; fat, 1.7%; crude fiber, 4.7%; pentosans, 3.6%; carotene, bergaptene, stigmasterol, sitosterol, and tyrosine [3].

The main phytochemical compounds found in fig leaves are volatile combinations such as aldehydes, alcohols, benzyl alcohol, phenylethyl alcohol, ketone, esters, hexyl acetate, ethyl benzoate, and methyl salicylate, monoterpenes, sesquiterpenes and other combinations [4]. Also Figs are an excellent source of phenolic compounds, such as proanthocyanidins, [5].

Traditional use of its fruit, root, and leaves to treat many disease such as digestive ailments,

endocrine system disease, respiratory system disease, cardiovascular disease, hypertriglyceridemia and gingivitis. In addition to, it's uses as antispasmodic and anti-inflammatory medicine [6,7]. Leaves of figs usually have been used to treat diabetes, hypoglycemic, asthma and gingivitis [8,9]. On the other hand, published studies has been reported of many medicinal effects of *F. carica* such as cancer-repression, anti-anthelmintic, anti-oxidation and antimicrobial (antibacterial and antiviral effects) [10-12].

MATERIALS AND METHODS

Preparation of Fig Leaves

The leaves were obtained from Hilla Governorate (Iraq), after cleaning and removal foreign things, dried at 45^0C, then the leaves were stored in sealed container to elude the effect of moisture, and then stored at room temperature for further use.

Preparation of Sample

20 grams of the dry ground plant were taken and 100 ml of methanol were added to it in a clean beaker for 16 h in a horizontal shaker. The solution was filtered with filter paper. The filtrate was used to perform the chemical analyzes [13].

Analysis Phytochemicals by Gas Chromatography-Mass Spectrum (GC-MS)

The GC-MS analysis of the plant extract was made in an instrument (QP 2010 Plus SHIMADZU) under computer control at 70 eV [18;19]. Injected about 1 µl of the methanolic solution into the GC-MS, after that the skimming accomplish in 45 minuts. When the components were detached, they entered a detector which had the ability to create an electronic signal wherever a component was distinguished. Then this signal obtained had been processed by the computer. Retention time (RT) was calculated from the injected time to elution.

The carrier gas used here is helium. Energy of the electron gun of mass detector was about 70eV. Siloxane used in the column. By the comparison of their retention directories and destruction shapes of mass spectra with those stored on the CPU library In addition to the published literatures [14,15].

Analysis the functional groups in the plant by Fourier Transform Infrared Spectrophotometer (FTIR)

The plant part powdered sample was extracted with methanol to be treated for reading by FTIR spectroscopy (Shimadzu, IR Affinity 1, Japan), the sample was run at infrared area between 400 and 4000 nm [16,17].

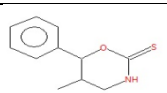
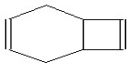
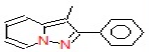
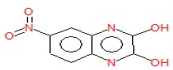
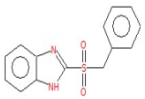
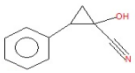
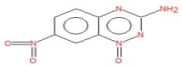
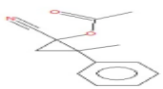
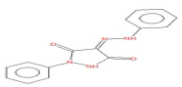
RESULTS AND DISCUSSION

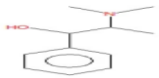
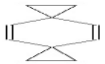
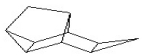
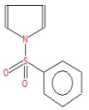
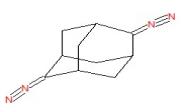
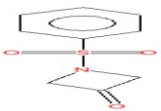
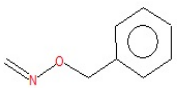
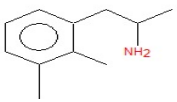
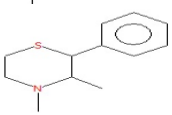
Chromatogram GC-MS analysis of methanol extract of Ficus carica leaves showed the presence of 55 compounds. The chemical compound, structural formula, molecular weight and exact mass were as shown in (Table 1). The spectrum profile of GC-MS showed the presence of fifty five major peaks and these compounds were variable compound and had different chemical nature such as 5-Methyl-6-phenyltetrahydro-1,3-oxazine-2-thione , Cis-Bicyclo[4.2.0]octa-3,7-diene , Pyrazolo[1.5-a]pyridine , 3-methyl-2-phenyl , 2,3-Dihydroxy-6-nitroquinoxaline , Benzimidazole , 2-benzylsulfonyl , Trans-1-Cyano-phenylcyclopropanol , 3-Amino-7-nitro-1,2,4-benzotriazine 1-oxide , Trans-Acetoxy-1-cyano-2-methyl-2-phenylcyclopropane , Pyrazolidinetrione ,phenyl-,4-(phenylhydrazone) , Methylephedrine , Dispiro[2.2.2.2]deca-4,9-diene , Pentalane , 1-Benzenesulfonyl-1H-pyrrolo , and others as shown in Figs. 1-55.

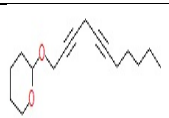
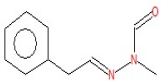
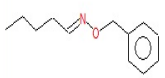
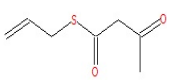
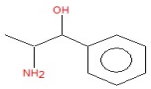
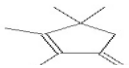
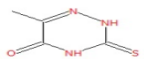
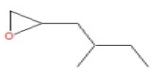
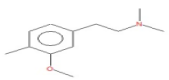
The FTIR spectroscopy was used to identify the functional group of the active compounds based on the peak value in the area of infrared radiation. The results of FTIR peak values and functional groups were characterized in Table (2). Various functional groups of different compounds was found in this sample.

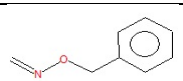
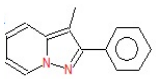
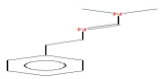
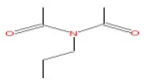
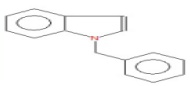
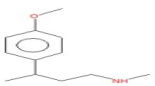
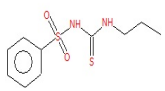
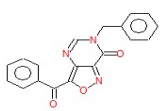
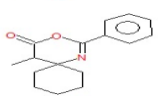
The absorption spectra of original leaves sample are show in Fig. 1 which give 30 peaks. The dominant peaks in leaves were observed at 719.45 to 989.48 cm^{-1} represents Alkenes compound. The peaks at 657.73 to 688.59cm^{-1} represents Alkyl

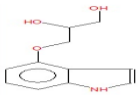
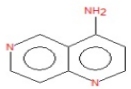
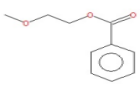
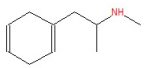
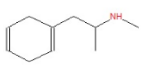
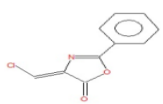
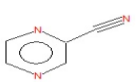
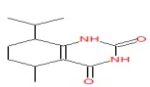
Table (1). phytochemical compounds identified in *Ficus carica* leaves

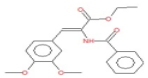
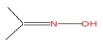
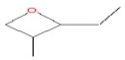
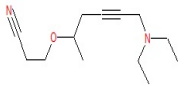
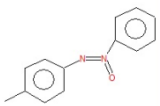
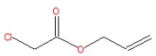
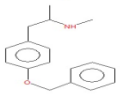
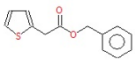
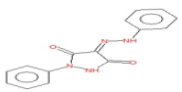
Serial No.	Phytochemical compound	RT (min)	Exact Mass	Chemical structure	MS fragment-ions	Molecular Formula
1-	5-Methyl-phenyltetrahydro-1,3-oxazine-2-thione	3.167	207.071785		57,77,91,117,132,147,163,174,207	C4H7NO3
2-	Cis-Bicyclo[4.2.0]octa-3,7-diene	3.384	106.0782504		51,65,78,91,105	C8H10
3-	Pyrazolo[1.5-a]pyridine , 3-methyl-2-phenyl	3.379	208.100048		51,63,77,91,104,131,207	C14H12N2
4-	2,3-Dihydroxy-6-nitroquinoxaline	3.390	207.028006		51,63,78,90,105,121,133,149,161,179,	C8H5N3O4
5-	Benzimidazole , 2-benzylsulfonyl-	3.453	272.061949		51,65,77,91,117,130,180,207,240,272	C14H12N2O2S
6-	Trans-1-Cyano-2-phenylcyclopropanol	4.088	159.068414		51,78,91,104,130,159	C10H9NO
7-	3-Amino-7-nitro-1,2,4-benzotriazine 1-oxide	4.197	207.039239		78,90,104,117,131,149,161,177,191,207	C7H5N5O3
8-	Trans-Acetoxy-1-cyano-2-methyl-2-phenylcyclopropane	4.414	215.094628		51,77,91,103,118,145,155,172,187,215	C10H12N2O
9-	Pyrazolidinetrione ,phenyl-,4-(phenylhydrazone)-	5.862	280.096025		51,65,77,93,107,118,134,203,280	C15H12N4O2

Serial No.	Phytochemical compound	RT (min)	Exact Mass	Chemical structure	MS fragment-ions	Molecular Formula
10-	Methylephedrine	5.925	179.131014		72,77,91,105,117	$C_{11}H_{17}NO$
11-	Dispiro[2.2.2.2]deca-4,9-diene	6.131	132.093901		52,63,77,91,103,117,132	C10H12
12-	Pentalane	6.451	132.093901		54,65,78,91,104,117,131	C8H6
13-	1-Benzenesulfonyl-1H-pyrrolo	6.697	207.035399		51,77,97,115,125,141,207	C10H9NO2S
14-	2,6-Bis(diazo)adamantane	7.104	188.106196		51,65,77,91,103,117,131	C10H12N4
15-	N-Benzenesulfonylazetidin-3-one	7.270	211.030314		51,57,63,65,69,74,77,91,97	C9H9NO3S
16-	Benzyloxymethylimine	7.876	135.068414		51,57,63,65,69,73,77,79,81,85,89,91,105	C8H9NO
17-	2,3-Dimethylamphetamine	7.922	163.1361		51,65,77,91,105,119,131,163	C11H17N
18-	(+)-trans-3,4-Dimethyl-2-phenyltetrahydro-1,4-thiazine	8.305	207.1081705		51,57,65,70,77,85,91,103,116,144,158,172,207	C12H17NS

Serial No.	Phytochemical compound	RT (min)	Exact Mass	Chemical structure	MS fragment-ions	Molecular Formula
19-	2H-Pyran,tetrahydro-2-(2,5-undecadiynyloxy)-	8.448	248.17763		51,65,77,85,91,101,117,134,149,163,184,205	C16H24O2
20-	Phenylacetaldehyde N-methyl-N-formylhydrazone	8.563	176.094963		51,65,77,85,91,103,117,142,176	
21-	Pentanal O-benzyloxime	8.992	191.131014		54,65,79,91,107,149	C12H17NO
22-	Acetoacetic acid , 1-thio-, S-allyl ester	9.513	158.040151		54,59,69,85,125,158	C7H10O2S
23-	Benzenemethanol , α-(1-aminoethyl)- .[R,(R*,R*)]	9.598	151.099714		51,63,77,91,107,132	C9H16C1NO
24-	2-Cyclopentene-1-thione , 2,3,4,4-tetramethyl-	9.701	154.081621		53,59,79,91,105,139,154	C9H14S
25-	6-Aza-2-thiothymine	9.810	143.015333		56,59,69,74,85,101,115,143	C4H5N3OS
26-	Oxirane , (2-methylbutyl)-	9.930	114.104465		55,69,81,85,99,114	C7H14O
27-	N,N-Dimethyl-3-methoxy-4-methylphenethylamine	9.999	193.146665		58,77,91,103	C12H19NO

Serial No.	Phytochemical compound	RT (min)	Exact Mass	Chemical structure	MS fragment-ions	Molecular Formula
28-	Benzyloxymethylimine	7.876	135.068414		51,57,63,65,69,73,77,79,81,85,89,91,105	C8H9NO
29-	Pyrazolo[1,5-a]pyridine , 3-methyl-2-phenyl-	7.945	208.100048		51,63,77,91,104,131,207	C14H12N2
31-	2-Phenethylamine , N-dimethylaminomethylene-	9.415	176.131349		51,65,77,85,105,132,176	C11H16N2
32-	Acetamide ,N-acetyl-N-propyl-	9.673	143.094628		56,77,86,100,114,128,143	C7H13NO2
33-	1-benzylindole	9.713	207.104799		51,65,77,91,102,116,130,152,178,207	C15H13N
34-	4-Methoxy-N,α-dimethylbenzenepropanamine	9.793	193.146665		58,65,77,91,103,121,134,147,162,178,193	C12H19NO
35-	Urea , 1-(phenylsulfonyl)-3-propyl-2-thio-	9.925	258.04967		51,55,58,62,72,77,85,93,97,101,110,117	C10H14N2O2S2
36-	Isoxazolo[4,3-d]pyrimidin-7(6H)- , one , 3-benzoyl-6-(phenylmeth	10.611	331.095692		51,65,77,91,105,117,144,170,187,198,215	
37-	4,5-Dihydro-5-methyl-4,4-pentamethylene-2-phenyl-1,3-oxazir	10.949	257.141579		51,56,77,105	

Serial No.	Phytochemical compound	RT (min)	Exact Mass	Chemical structure	MS fragment-ions	Molecular Formula
38-	1,2,3-Propatriol , 1-indol-4-yl(ether)	10.691	207.089543		57,69,77,89,97,104,116,133,146,176,189,207	C11H13NO3
39-	1,6-Naphthyridin-4-amine	10.359	145.063997		52,63,79,91,105,118,145	C8N7N3
40-	2-Methoxyethyl benzoate	10.388	180.078644		51,58,63,77,91,105	C10H12O3
41-	1-(1,4-cyclohexadienyl)-2-methylaminopropane	11.023	151.1361		51,56,58,65,67,70,74,77,89,91,96	C10H17N
42-	1-(1,4-cyclohexadienyl)-2-methylaminopropane	11.023	151.1361		51,56,58,65,67,70,74,77,89,91,96	C10H17N
43-	4,5-Dihydrooxazole-5-one , 4-chloromethylene-2-phenyl-	11.223	207.008706		77,91,105,128,135,149,174,190,207	C10H6C1NO2
44-	Cyanopyrazine	11.361	105.032697		76,78,79,102,105	C5H3N3
45-	8-Isopropyl-5-methyl-5,6,7,8-tetrahydro-2,4-quinazolinedione	11.624	222.136827		77,94,122,165,179,207,222	C12H18N2O2

Serial No.	Phytochemical compound	RT (min)	Exact Mass	Chemical structure	MS fragment-ions	Molecular Formula
46-	Propenoic acid ,2-benzoylamino-3-(3,4-dimethoxyphenyl)-,	11.515	355.141973		51,77,105,134,177,204,250,274,309,355	
47-	2-Propanone , oxime	11.698	73.052764		58,73	C3H7NO
48-	Oxetane , 2-ethyl-3-methyl-	10.726	100.088815		56,70,85,100	C6H12O
49-	1,2,3-propatriol , 1-indol-4-yl(ether)	10.691	207.089543		57,69,77,89,97,104,116,133,146,176,189,207	C11H13NO3
50-	Propanenitrile ,3-(5-diethylamino-1-methyl-3-pentynyloxy)-	10.760	222.173213		58,77,86,98,110,124,152,168,193,207	C13H22N2O
51-	1-Phenyl-2-(4-methylphenyl)-diazene 1-oxide	11.149	212.094963		77,91	C14H14N2O
52-	Choroacetic acid allyl ester	11.658	134.013457		51,52,55,56,58,59,62,70,71,76,77,79,80,85,87	C5H7C1O2
53-	4-Benzyloxy-N-methylamphetamine	11.916	255.162314		56,58,65,77,89,91	C17H21NO
54-	2-Thiopheneacetic acid , benzyl ester	12.334	232.0558		51,53,58,63,65,69,77,85,89,91,97,105	C13H12O2S
55-	Pyrazolidinetrione , phenyl -, 4-(phenylhydrazone)	12.574	280.096025		51,65,77,93,107,118,134,203,280	C15H12N4O2

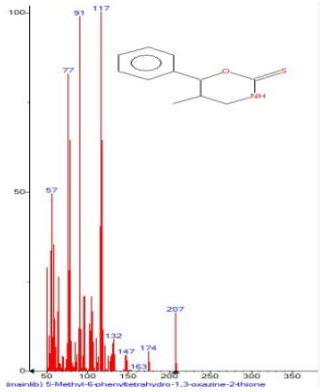


Fig. 1. 5-Methyl-6-phenyltetrahydro-1,3-oxazine-

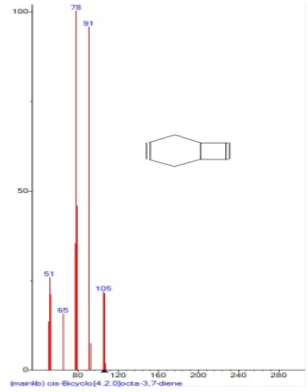


Fig. 2. Cis-Bicyclo[4.2.0]octa-3,7-diene

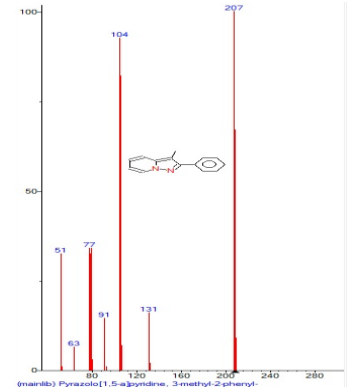


Fig. 3. Pyrazolo[1.5-a]pyridine3-methylphenyl-

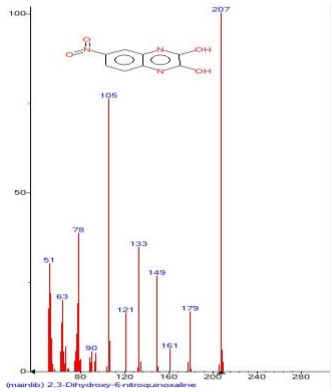


Fig. 4. 2,3Dihydroxy-6 nitroquinoxaline

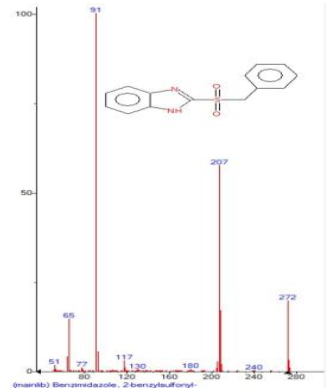


Fig. 5. Benzimidazole,2 benzylsulfonyl-

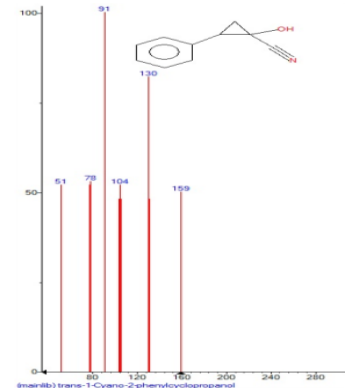


Fig. 6. Trans-1-Cyano-2 phenylcyclopropanol

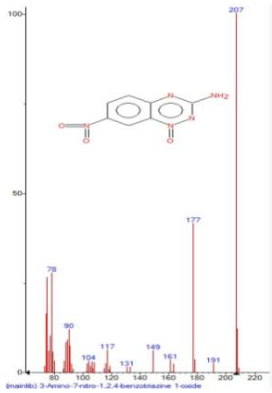


Fig. 7. 3Amino-7-nitro-1,2,4-benzotriazine1-oxide

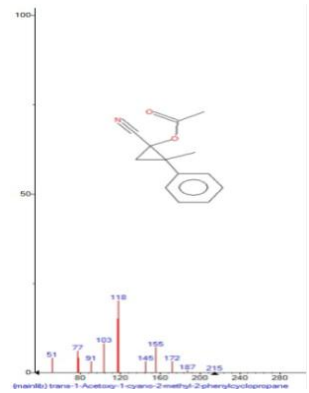


Fig. 8 .Trans-Acetoxy-1-cyano-methyl-2-phenylcyclopropane

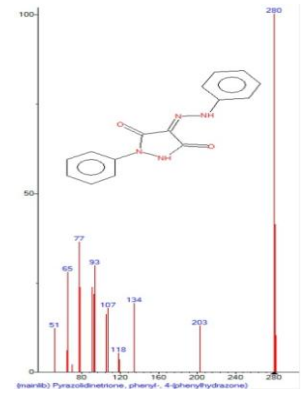


Fig. 9. Pyrazolidinetrione phenyl-,4-(phenylhydrazone

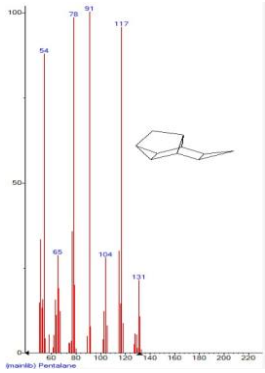


Fig. 10. Pentalane

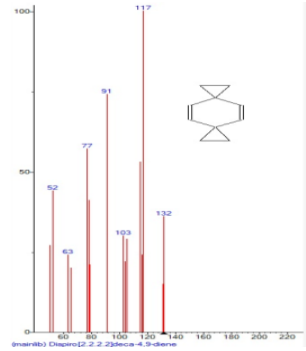


Fig. 11. Dispiro[2.2.2.2]deca-4,9diene

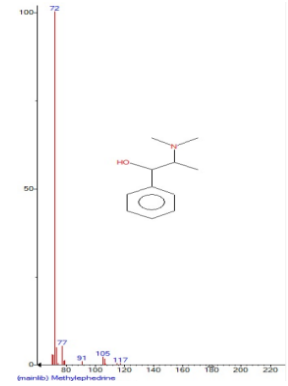


Fig. 11. Dispiro[2.2.2.2]deca-4,9diene

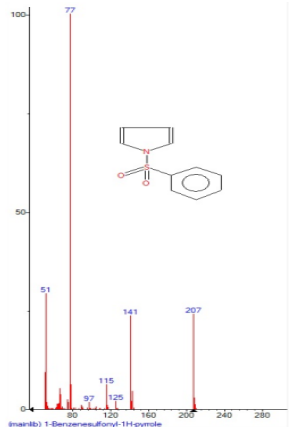


Fig. 13.Benzenesulfonyl-1H-pyrrolo

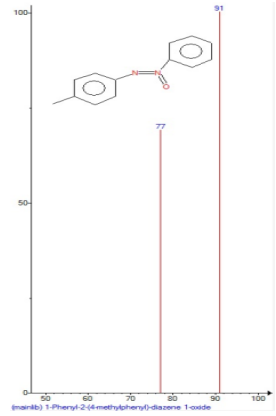


Fig. 14. Phenyl-2-(4-methylphenyl)

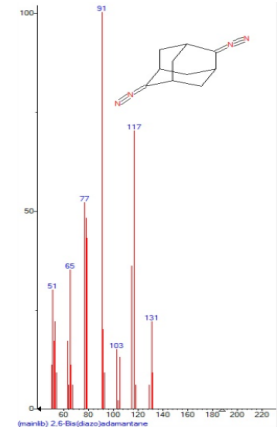


Fig. 15. 2,6(diazo)adamentan

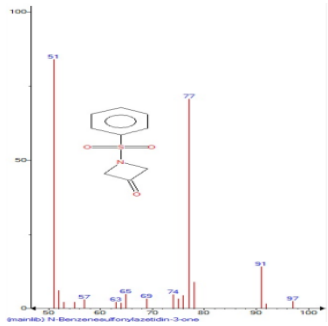


Fig. 16. N-Benzenesulfonyl

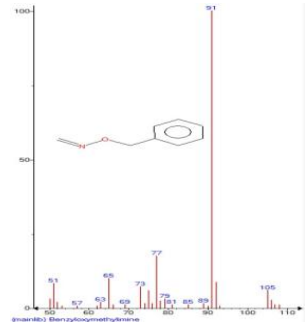


Fig. 17. Benzyloxymethylimine

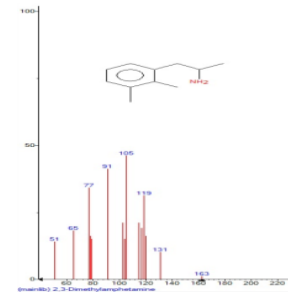


Fig. 18. Dimethylamphetamine

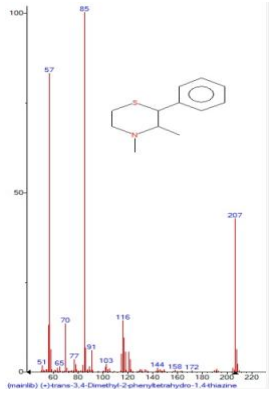


Fig. 19. trans-3,4-Dimethyl-2-phenyltetrahydro-1,4-thiazine

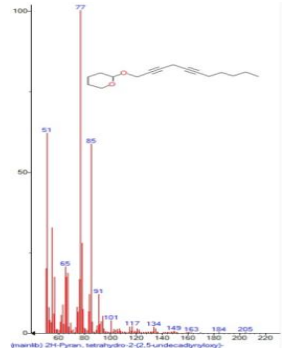


Fig. 20. 2H-Pyran,tetrahydro-2-(2,5-undecadiynyloxy)

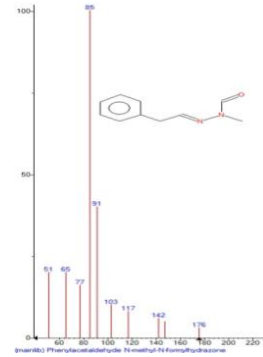


Fig. 21. Phenylacetaldehyde N-methyl-N-formylhydrazone

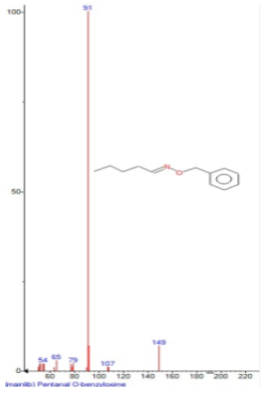


Fig. 22. Pentanal O-benzyloxime

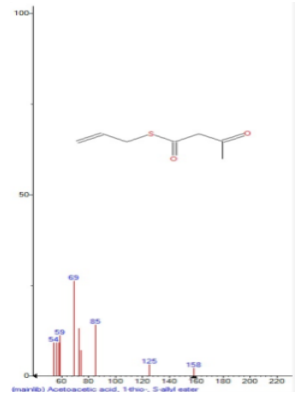


Fig. 23. Acetoacetic acid

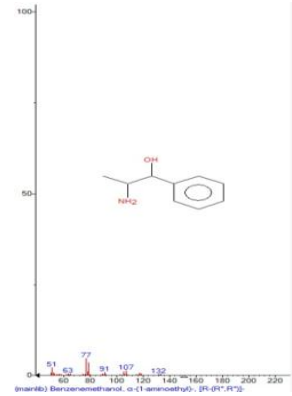


Fig. 24. Benzenemethanol ,

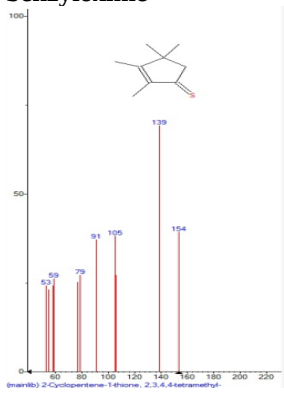


Fig. 25. 2-Cyclopentene-1 methylbutyl

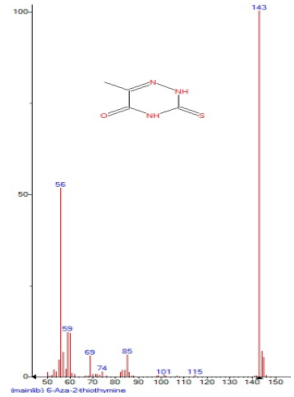


Fig. 26. 6-Aza-2-thiothymine

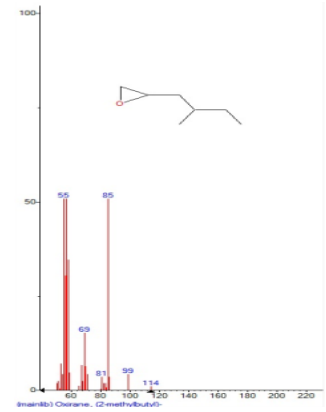


Fig. 27. Oxirane(2 thione , 2,3,4,4-tetramethyl

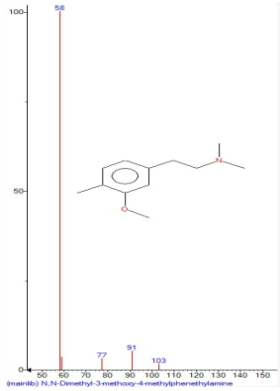


Fig. 28. Dimethyl-3-methoxy-4 -methylphenethylamine

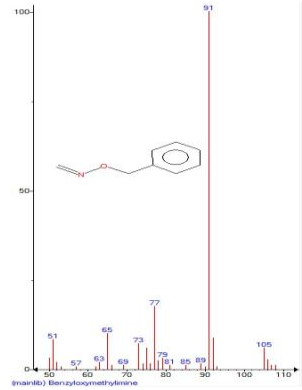


Fig. 29. Benzyloxymethylimine

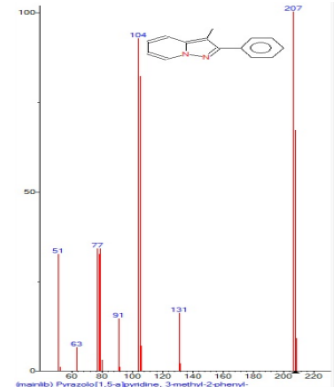


Fig. 30. Pyrazolo[1,5 a]pyridine 3-methyl-2-phenyl

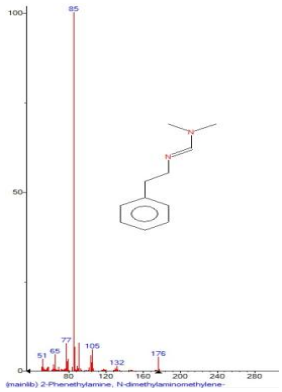


Fig. 31. 2 Phenethylamin N-dimethylaminomethylene

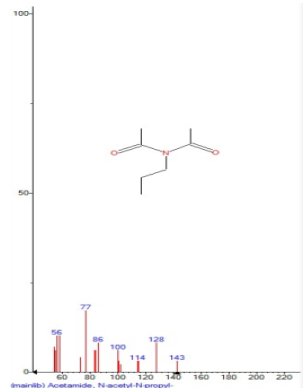


Fig. 32. Acetamide N-acetyl-N-propyl

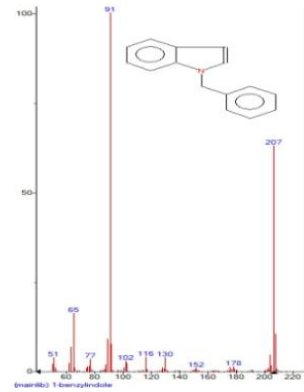


Fig. 33. 1-benzylindole

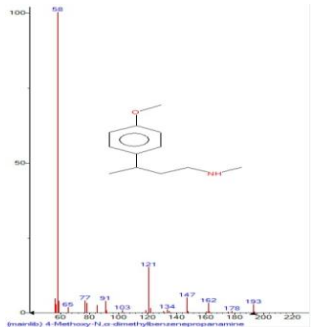


Fig. 34. 4-Methoxy-N,α-dimethyl Benzenepropanamine

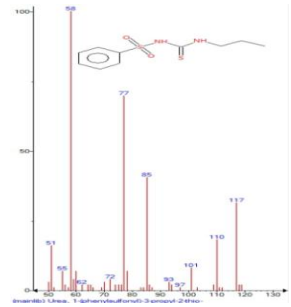


Fig. 35. Urea , 1-(phenylsulfonyl) -3-propyl-2-thio

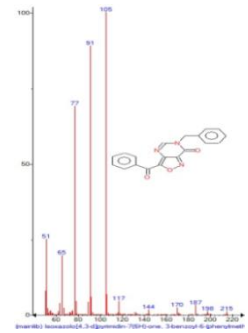


Fig. 36. Isoxazolo[4,3-d]pyrimidin

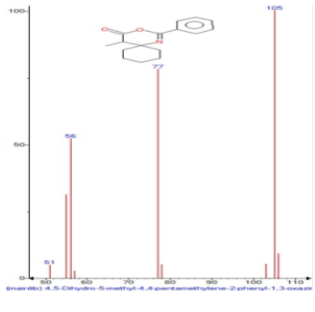


Fig. 37. 4,5-Dihydro-5 methyl-4,4pentamethylene

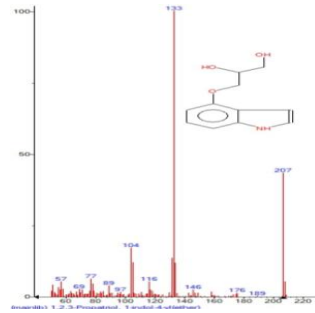


Fig. 38. 1,2,3-Propatriol 1-indol-4-yl(ether)

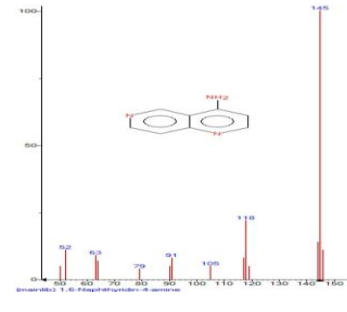


Fig. 39. 1,6-Naphthyridin-4-amine

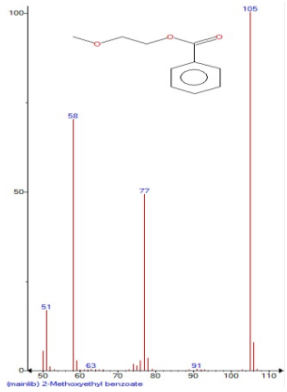


Fig. 40. 2-Methoxyethyl

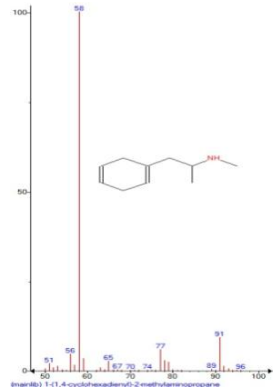


Fig. 41. 1-(1,4-cyclohexadienyl)

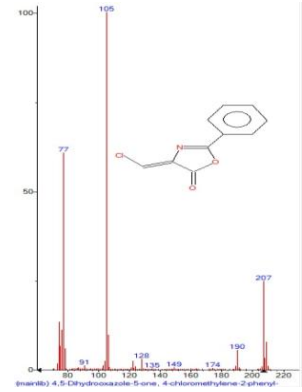


Fig. 42. 4,5-Dihydrooxazole

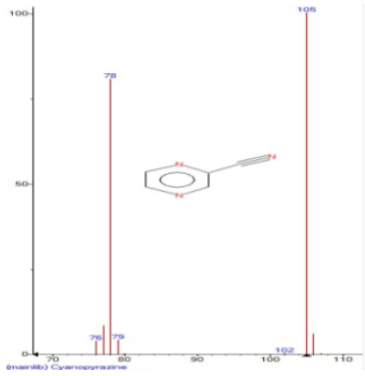


Fig. 43. Cyanopyrazine

Fig. 44. 8-Isopropyl-5-methyl

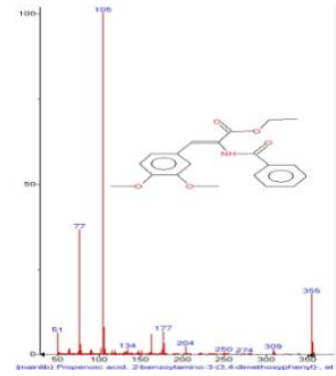


Fig. 5. Propenoic acid

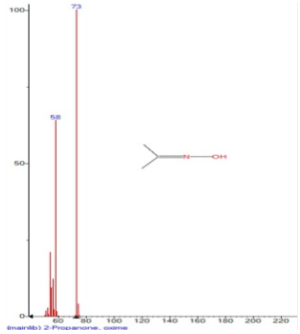


Fig. 46. 2-Propanone , oxime

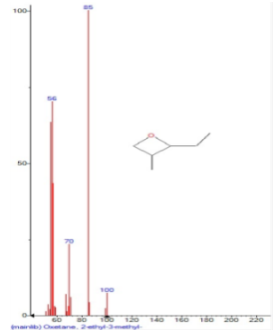


Fig. 47. Oxetane , 2-ethyl-3-methyl

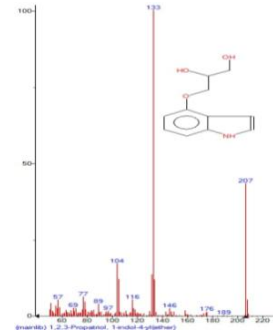


Fig. 48. 1,2,3-propatriol

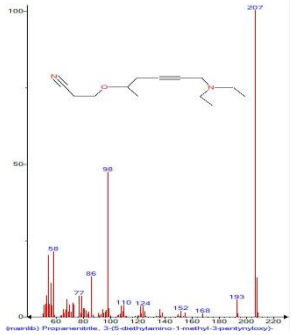


Fig. 49. Propanenitrile

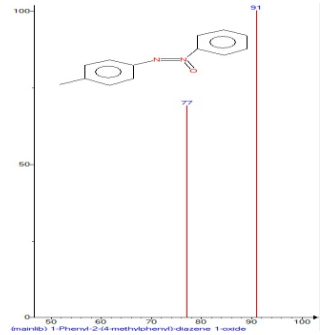


Fig. 50. 1-Phenyl-2-(4-methylphenyl)

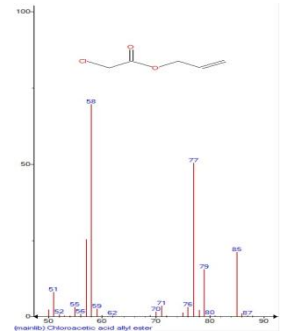


Fig. 51. choroacitic acid

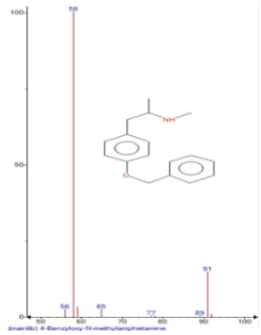


Fig. 52. Benzyloxy-N

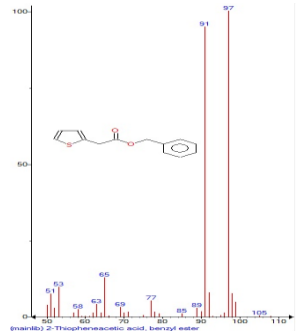


Fig. 53. Thiopheneacetic acid

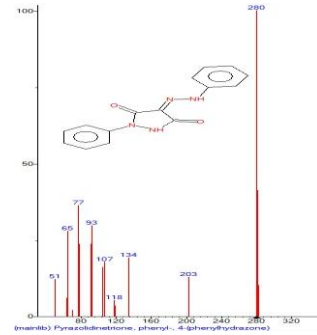


Fig. 54. methylamphetamine

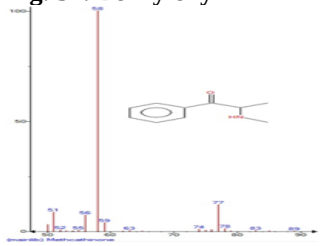


Fig. 55. Methcathinone

Table 2. FTIR peak values and functional groups *Ficus carica* leaves

No.	Peak(Wave number) cm	Intensity	Area	Type of Intensity	Bond	Type of vibration	Functional group assignment	Group frequency
1-	657.73	57.658	2.262	Medium	C-Br	Stretch	Alkyl halides	515-690
2-	667.37	52.781	3.912	Medium	C-Br	Stretch	Alkyl halides	515-690
3-	688.59	56.002	7.964	Medium	C-Br	Stretch	Alkyl halides	515-690
4-	719.45	58.677	7.136	Strong	=C-H	Bending	Alkenes	650-1000
5-	817.82	68.707	4.564	Strong	=C-H	Bending	Alkenes	650-1000
6-	850.61	71.039	2.831	Strong	=C-H	Bending	Alkenes	650-1000
7-	887.26	72.055	2.167	Strong	=C-H	Bending	Alkenes	650-1000
8-	925.83	64.066	8.384	Strong	=C-H	Bending	Alkenes	650-1000
9-	989.48	44.263	14.379	Strong	=C-H	Bending	Alkenes	650-1000
10-	1028.06	43.571	9.985	Medium	C-N	Stretch	Aliphatic amines	1020-1250
11-	1045.42	43.573	15.438	Medium	C-N	Stretch	Aliphatic amines	1020-1250
12-	1099.43	60.523	6.724	Medium	C-N	Stretch	Aliphatic amines	1020-1250
13-	1193.94	79.785	1.987	Medium	C-N	Stretch	Aliphatic amines	1020-1250
14-	1232.51	76.689	2.106	Medium	C-N	Stretch	Aliphatic amines	1020-1250
15-	1313.52	74.916	2.723	Medium	N-O	Symmetric stretch	Nitro compound	1290-1360
16-	1336.67	73.335	2.535	Medium	N-O	Symmetric stretch	Nitro compound	1290-1360
17-	1361.74	72.878	2.049	-	-	-	Unknown	-
18-	1373.32	72.747	2.096	-	-	-	Unknown	-
19-	1593.20	75.859	3.018	Medium	N-H	Bending	Amines	1580-1650
20-	1716.65	82.838	2.535	-	-	-	Unknown	-
21-	2360.87	80.442	2.333	-	-	-	Unknown	-
22-	2850.79	8o.727	2.824	Medium	C-H	Stretch	Alkanes	2850-3000
23-	2881.65	80.794	2.299	Medium	C-H	Stretch	Alkanes	2850-3000
24-	3116.97	73.553	3.427	Medium	O-H	Stretch	Carboxylic acids	2500-3300
25-	3234.62	65.872	2.069	Medium	O-H	Stretch	Carboxylic acids	2500-3300
26-	3267.41	64.627	2.528	Medium	O-H	Stretch	Carboxylic acids	2500-3300
27-	3288.63	65.010	2.853	Medium	O-H	Stretch	Carboxylic acids	2500-3300
28-	3329.14	65.410	2.093	Medium	N-H	Stretch	Amines, amides	3250-3400
29-	3379.29	66.883	4.833	Medium	N-H	Stretch	Amines, amides	3250-3400
30-	3471.87	76.011	2.428	Strong,Sharp	O-H	Stretch	Alcohol	3500-3700

halides. The peaks at 43.571 to 76.689cm^{-1} represents aliphatic amines. The peak at 74.916 to 73.335cm^{-1} represent nitro compounds, The peaks at 75.859cm^{-1} represents Amines, The peaks at 8o.727 to 80.794cm^{-1} represents Alkanes, The peaks at 73.553 to 65.010cm^{-1} represents Carboxylic acids, the peaks at 65.410 to 66.883cm^{-1} represents amines amides, and the peak at 76.011cm^{-1} represent alcohol. Carboxilic acids used as antioxidants, radio, and cytoprotector [18]. Alkanes and alkenes had antimicrobial and cytotoxic effects [19].

Medicinal plants have huge therapeutic uses and it may have fewer side effects than chemical medications. Today we need to explore more plant-based antibiotics. *F. carica* have large number of phytochemicals such as bioflavonoids, vitamins(vitamin B3), glycosides, enzymes anthesterin(taraxasterol),L-tyrosine, xanthotoxol, ficusin, bergapten, Phytosterol(stigmasterol, beta-Sitosterol, campesterol), beta-Carotene, calotropenyl acetate, β-amyrins, psoralene, Beta-Sitosterol, arabinose, rutin , Lupeol acetate, saponins, oleanolic acid, Mucilages and fatty acids [20-21]. Umbelliferone [22,23], 6-(2- methoxy-Z-vinyl)-7-methyl-pyranocoumarin and 9,19-cycloarlane triterpenoid, 6-Oacyl- *β*-Dglucosyl - *β*-sitosterol and calotropenyl acetate [24,25].

Gilani et al. [26] found positive tested for alkaloids, flavonoids, coumarins, saponins, sterols and terpenoids in *F. carica*. Nicotra et al. (2010) [27] show the contented of phenolic compounds was 1.86%, and the quercetin content was 0.06% in the leaves of *Ficus carica* by HPLC. *F. carica* used as hepatoprotective, hypoglycemic, hypolipedimic, anticancer, antioxidant, antimicrobial and anti-fungal [28-30].

Many studies confirmed that extract of fig leaves showed anti-inflammatory effect, that was 75.90% in acute inflammation and in chronic study it was 71.66% reduction in granuloma weight [31], and leaves extract showed anti‑ pyretic whichsignificant dose‑ dependent reduction in normal body temperature [32], also leaves aqueous extract showed hypoglycemic activity in treated versus non‑ treated diabetic rats [33], studies showed fig leaves extract act as anti‑ angiogenic by bserved that the extract dose dependently inhibited the tube formation of HUVECs [34] .

CONCLUSION

Ficus carica is a native plant of Iraq. Thus the GC-MS analysis of methanolic extract of the leaves of this plant showed a highly complex profile containing approximately fifty five chemical compound. It contain phytochemicals which may be useful for various herbal formulation as anti-inflamatory, anti-bacterial, anti-fungal Anticancer, Antioxidant and others.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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