EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 7
Issue: 1
309-313
Year: 2020

SYNTHESIS AND ANTIBACTERIAL ACTIVITY STUDYS OF 8, 9-DI HYDRO 7H BENZO 1,2,4-OXADIAZOL-3-YL]-4-METHYL-2H-CHROMEN-2-ONES

Dr. A.L.V Ramana Reddy*

Department of Chemistry, Chaitanya Bharathi Institute of Technology, Vidya Nagar, Pallavolu, Proddatur, A.P-516360.

***Corresponding Author: Dr. A.L.V Ramana Reddy**
Department of Chemistry, Chaitanya Bharathi Institute of Technology, Vidya Nagar, Pallavolu, Proddatur, A.P-516360.

Article Received on 28/10/2019 **Article Revised on 17/11/2019** **Article Accepted on 07/12/2019**

ABSTRACT
Synthesis, spectral analysis and bioactivity of new coumarin derivatives are described in this paper. Eight new coumarin derivatives were synthesized in moderate to good yields by react with 4-carbonyl chloride via 1,2-dichloroethane and done by the conventional and micro wave irradiation. The structures of all the newly synthesized molecules were assigned by elemental analysis and spectral data. The synthesized compounds were screened for their antibacterial activities strains using Cup plate method.

KEYWORDS: Antimicrobial activity, microwave irradiation, 1, 2-dichloroethane, PTSA.

INTRODUCTION
Heteroaromatic compounds have attracted considerable attention in the design of biologically active molecules and advanced organic materials. Hence a practical method for the preparation of such compounds is of great interest in synthetic organic chemistry, Pyrazole is a five member heterocyclic compound containing two nitrogen atoms adjacent to each other. In 1883, Knorr et al[1] gave the generic name pyrazole to the compounds, which is a five member unsaturated ring compound with two adjacent nitrogen atoms. Pyrazoles and its derivatives, a class of well known nitrogen containing heterocyclic compounds, occupy an important position in pharmaceutical and agrochemical industry due to their antimicrobial[2], anti-inflammatory[3] and antitumor[4] activities, antibacterial[5], antifungal[6], antiviral[7], antitubercular[8], antioxidant[9], antiandrogenic[10] etc. On the other hand, sulfonamides and their different derivatives are extensively used in medicine due to their pharmacological properties such as antibacterial activity.[11, 12]

Major synthetic routes to the 1,2,4-oxadiazoles have been recently reviewed by Clapp[16], who pointed out that 95% of the practical'preparations are encompassed by two general methods: viz., (a) the condensation of amidoximes with carboxylic acid derivatives, and (b) the dipolar cycloaddition of nitrile oxides to nitriles. Subsequently, Lin and co-workers[17] reported a new general method in which N'-acyl-NJV-dimethylamides react with hydroxylamine to form 3, 5-disubstituted or 5-monosubstituted 1,2,4-oxadiazoles in high yields.

EXPERIMENTAL
All the reagents were obtained commercially (SD fine, India) and used with further purification. Melting points were determined by open capillary method. The IR spectra (in KBr pellets) were recorded on a Perkin-Elmer FTIR spectrophotometer.^{1}H NMR ($CDCl_3$ 400 MHz) and ^{13}C NMR ($CDCl_3$, 100.6 MHz) were recorded on spectrometer TMS as internal standard (chemical shifts and ppm). Mass spectra were recorded on a VG micromass70-70H instrument. The purity of the compounds were checked by TLC on silica gel plates using a mixture of n-hexane and ethyl acetate.

I.General procedure for the synthesis of 8, 9 di hydro 7H benzo N'-(3-(2-chloro-6-fluorophenyl)-5-methylisoxazole-4-carbonyloxy)-2-(4,7-dimethyl-2-oxo-2H-chromen-6-yloxy)acetimidamide (4d)
8, 9 di hydro 7h benzo 2-(4,7-dimethyl-2-oxo-2H-chromen-6-yloxy)-N'-hydroxyacetamidine **(2b)** (l.0gr, 0.004mmol) and DIPEA (12ml) were taken in 30ml of 1,2-dichloroethane. The reaction mixture was cooled to 10°C, to this 8, 9 di hydro 7h benzo 3-(2-chloro-6-fluorophenyl)-5-methylisoxazole-4-carbonyl chloride **(3a)** (1.2gr) is added in small portions. After completion of addition the resulting reaction was refluxed for 4 hrs to obtain a new product, which is identified as 8, 9 di hydro 7h benzo N'-(3-(2-chloro-6-fluorophenyl)-5-methylisoxazole-4-carbonyloxy)-2-(4,7-dunethyl-2-oxo-2H-chromen-6 yloxy)acetimidamide **(4d).** The crude product was purified by column chromatography with 10:90 Ethyl acetate: Pet-ether.

IR (KBr): *v* 3491 cm^{-1}, 3356 cm^{-1} (NH_2), 1741 cm^{-1} (C=O of ester), 1701 cm^{-1} (C=O of - coumarin). Mass (ES): *m/z* 500.3 $[M+H]^+$.

II.General procedure for the synthesis of 8, 9- di hydro 7Hh benzo 6-((5-(3-(2-chloro-6-fluorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl)methoxy)-4-methyl-2H-chromen-2-one (5a-i)

The compound 8, 9 di hydro 7h benzo N'-(3-(2- chloro-6-fluorophenyl)-5-methylisoxazole-4- carbonyloxy)-2-(4-methyl-2-oxo-2H-chromen- 6-yloxy)acetimidamide **(4a)** (1gr, 0.002mmol) was refluxed for 4hr in 25ml of toluene with catalytic amount of PTSA to obtain the compound 8, 9 di hydro 7h benzo 6-((5-(3-(2-chloro-6 fluorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl) methoxy)-4-methyl-2H-chromen-2-one **(5a)**.

Yield: 70 %. IR (KBr): *v* 1720 (C=O), 1568 (C=N), 1158 (C-O), 902 (N-O) $cm^{-1,}$ ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 7.32 (dd, J=5.8Hz, J=0.8Hz, 5'''-H), 7.26 (d, J=6.2Hz, 3'''- H), 7.18 (dddd, J=8.2Hz, J=0.8Hz, 4'''-H), 7.01-7.08 (m, 5-H, 7-H, 8-H), 6.22 (s, 3-H), 4.89 (s, OCH_2), 2.54 (s, 5''-CH_3), 2.36 (s, 4-CH_3). ^{13}C-NMR: ($CDC1_3$ 100MHz): δ 172.2, 168.4, 165.7, 161.8, 160.3, 158.4, 153.9, 151.4, 149.7, 148.0, 147.1, 132.3, 131.6, 130.7, 124.8,-118.7, 118.0, 115.7, 113.3, 104.8, 62.3, 18.4 and 14.6. Mass (ES): *m/z* 468.1 $[M+H]^+$. Anal. Calcd for : C, 59.05; H, 3.23; N, 8.98 %. Found: C, 58.80; H, 3.07; N, 9.32 %. M.P: 144°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2,6-dichlorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3~yl)methoxy)-4-methyl-2H-chromen-2-one (5b)

Yield: 72 %. IR (KBr): *v* 1716 (C=O), 1562 (C=N), 1161 (C-O), 906 (N-O) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): 7.35 (dd, J=5.8Hz, J=1.2Hz, 5'''-H), 7.29 (d, J=6.4Hz, 3'''-H), 7.23 (dddd, J=7.6Hz, J=1.2Hz, 4'''-H), 6.96-7.08 (m, 5-H, 7-H, 8-H), 6.21 (s, 3-H), 4.91 (s, OCH_2), 2.61 (s, 5''-CH_3), 2.33 (s, 4-CH_3). ^{13}C-NMR: ($CDC1_3$, 100MHz): δ 176.5, 167.3, 164.8, 161.3, 160.8, 159.8, 155.4, 153.0, 152.3, 151.0, 147.2, 134.9, 133.0, 131.9, 124.7, 118.8, 117.4, 115.8, 113.0, 102.2, 63.5, 20.8 and 18.2. Mass (ES): *m/z* 484.0 $[M+H]^+$. Anal. Calcd for : C, 57.04; H, 3.12; N, 8.68 %. Found: C, 56.71; H, 2.84; N, 8.97 %. M.P: 147°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2-chlorophenyl)-5-methylisoxazol-4-yl)-l, 2,4-oxadiazol-3-yl)methoxy)-4-methyl-2H-chromen-2-one (5c)

Yield: 72 %.IR (KBr): o 1714 (C=O), 1571 (C=N), 1171 (C-O), 911 (N-O) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): 7.35 (dd, J=5.6Hz, J=0.8Hz, 6'''-H), 7.32 (dd, J=6.2Hz, J-0.8Hz, 3'''-H), 7.22-7.29 (m, 4'''-H), 7.15-7.20(m, 5'''-H), 7.00-7-08 (m, 5-H, 7-H, 8-H), 6.32 (d, J=0.8Hz, 3-H), 4.89 (s, OCH_2), 2.54 (s, 51'-CH_3), 2.38 (d, J=0.8Hz, 4-CH_3). °C-NMR: ($CDCl_3$, 100MHz): δ 167.3, 163.7, 161.8, 160.1, 156.2, 152.8, 150.7, 149.9, 147.3, 146.1, 133.3, 131.7, 130.9, 129.4, 124.8, 120.2, 117.8, 116.1, 102.8, 111.8, 60.2, 19.6 and 14.5. Mass (ES): *m/z* 450.1 $[M+H]^+$. Anal. Calcd for : C, 61.41; H, 3.59; N, 9.34 % Found: C, 60.89; H, 3.33; N, 9.63 %. M.P: 151°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2-chloro-6-fluorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl)methoxy)-4,7-dimethyl-2H-chromen-2-one (5d)

Yield: 64 %. IR (KBr): *v* 1718 (C=O), 1653 (C=N), 1560 (C=C), 1166 (C-O), 902 (N-O) cm^{-1} ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 7.37 (dd, J=6.0Hz, J=0.8Hz, 5'''-H), 7.31 (d, J=8Hz, 3'''-H), 7.13 (dddd, J=8.4Hz, J=0.8Hz, 4'''-H), 7.08 (s, 8-H), 7.00 (s, 5-H), 6.23 (d, J=0.8Hz, 3-H), 4.67 (s, OCH_2), 2.86 (s, 5''-CH_3), 2.35 (d, J=0.8Hz, 4-CH_3), 2.28 (s, 7-CH_3). ^{13}C-NMR: ($CDC1_3$, 100MHz): δ 174.1, 169.3, 166.7, 162.1, 161.0, 159.6, 154.3, 152.6, 151.9, 150.8, 148.5, 135.2, 133.3, 132.2, 125.5, 119.1, 118.0, 116.2, 114.4, 106.0, 61.7, 18.7, 16.6 and 13.3. Mass (ES): *m/z* 482.6 $[M+H]^+$. Anal. Calcd for : C, 59.82; H, 3.56; N, 8.72%. Found: C, 59.53; H, 3.25; N, 9.00 %. M.P: 143°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2,6-dichlorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl)methoxy)-4,7-dimethyl-2H-chromen-2-one (5e)

Yield: 66 %. IR (KBr): *v* 1721 (C=O), 1564 (C=N), 1165 (C-O), 909 (N-O) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 12.9 (dd, J=6.0Hz, J=1.2Hz, 5'''-H), 7.25 (d, J=8Hz, 3'''-H), 7.13 (dddd, J=7.'6Hz, J=1.2Hz, 4'''-H), 7.06 (s, 8-H), 6.95 (s, 5-H), 6.25 (d, J=0.8Hz, 3-H), 5.20 (s, OCH_2), 2.66 (s, 5''-CH_3), 2.38 (d, J-0.8Hz, CH_3), 2.64 (s, 7-CH=). ^{13}C-NMR: ($CDC1_3$, 100MHz): δ 171.2, 168.2, 167.7, 161.3, 158.2, 153.4, 152.8, 150.8, 149.5, 147.3, 134.2, 133.8, 132.6, 130.1, 124.9, 120.3, 117.6, 114.2, 113.8, 108.2, 63.9, 20.2, 17.6 and 14.5. Mass (ES): *m/z* 498.3 $[M+H]^+$. Anal. Calcd for : C, 57.85; H, 3.44; N, 8.43 %. Found: C, 57.61; H, 3.27; N, 8.74 %. M.P: 149°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2-chlorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl)methoxy)-4,7-dimethyl-2H-chromen-2-one (5f)

Yield: 67 %.IR (KBr): *v* 1716 (C=O), 1561 (C=N), 1159 (C-0), 902 (N-0) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 7.39 (dd, J=6.0Hz, J=1.2Hz, 6'''-H), 7.33 (dd, J=6.2Hz, J=1.2Hz, 3'''-H), 7.26-7.32 (m, 4'''-H), 7.18-7.24 (m, 5'''-H), 7.12 (s, 8-H), 6.98 (s, 5-H), 6.27 (s, 3-H), 5.12 (s, OCH_2), 2.68 (s, 5''-CH_3), 2.36 (s, 4-CH_3), 2.31 (s, 7-CH_3). ^{13}C-NMR: ($CDC1_3$, 100MHz): δ 169.1, 161.7, 160.3, 159.8, 151.8, 150.3, 148.7, 146.9, 145.2, 134.8, 132.8, 129.6, 128.4, 127.6, 122.2, 116.3, 115.5, 110.1, 109.6, 64.6, 22.0, 19.9, 15.8 and 12.7. Mass (ES): *m/z* 464.8 $[M+H]^+$. Anal. Calcd for : C, 62.14; H, 3.91; N, 9.06 %. Found: C, 61.8; H, 3.79; N, 9.24%. M.P: 146°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2-chloro-6-fluorophenyl)-5-methylisoxazol-4-yl)-l, 2,4-oxadiazol-3-yl)methoxy)-7-chloro-4-methyl-2H-chromen-2-one (5g)

Yield: 56 %. IR (KBr): *v* 1732 (C=O), 1578 (C=N), 1180 (C-0), 914 (N-0) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 7.35 (dd, J=6.2Hz, J=1.8Hz, 5'''-H), 7.30 (d, J=8.2Hz,

3'''-H), 7.16-7.21 (m; 4'''-H), 7.06 (s, 8-H), 7.00 (s, 5-H), 6.28 (s, 3-H), 4-88 (s, OCH_2), 2.79 (s, 5''-CH_3), 2.30 (s, 4-CH_3). ^{13}C-NMR: ($CDC1_3$, 100MHz): δ 172.1 168.3, 167.9, 163.4V 162.7, 158.7, 155.5, 152.7, 150.6, 149.3, 147.0, 142.1, 137.4, 132.6, 129.7, 123.3, 120.0, 118.2, -114.1, 103.9, 54.2, 22.3 and 14.8. Mass (ES): *m/z* 502.5 $[M+H]^+$. Anal. Calcd for : C, 55.00; H, 2.81; N, 8.37 %. Found: C, 54.78; H, 2.50; N, 8.77 %. M.P: 138°C,

8, 9 di hydro 7H benzo 6-((5-(3-(2,6-dichlorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl)methoxy)-7-chloro-4-methyl-2H-chromen-2-one (5h)

Yield: 52 %. IR (KBr): *v* 1728 (C=O), 1578 (C=N), 1175 (C-0), 908 (N-O) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 7.48 (dd, J=5.8Hz, J=1.2Hz, 5'''-H), 7.37 (d, J=7.2Hz, 3'''-H), 7.17 (dddd, J=8.2Hz, J=1.2Hz, 4'''-H), 7.08 (s, 8-H), 7.05 (s, 5-H), 6.27 (d, J=0.8Hz, 3-H), 4.93 (s, OCH_2), 2.59 (s, 5''-CH_3), 2.34 (d, J=0.8Hz, 4-CH_3). ^{13}C-NMR: ($CDC1_3$ 100MHz): δ 170.3, 167.2, 166.6, .162.0, 157.2, 154.2, 150.9, 149.3, 147.8, 146.1, 138.2, 135.3, 133.4, 131.7, 129.2, 126.6, 120.2, 116.2, 112.1, 107.3, 68.1, 22.2 and 12.3. Mass (ES): *m/z* 518.2 $[M+H]^+$. Anal. Calcd for : C, 53.25; H, 2.72; N, 8.10%. Found: C, 52.98; H, 2.39; N, 8.28%. M.P: 128-131°C,

8, 9 di hydro 7H benzo 6-((5-(3~(2-chlorophenyl)-5-methylisoxazol-4-yl)-l,2,4-oxadiazol-3-yl)methoxy)-7-chloro-4-methyl-2H-chromen-2-one (5i)

Yield: 58 %. IR (KBr): *v* 1717 (C=O), 1572 (C=N), 1166 (C-O), 903 (N-O) cm^{-1}. ^{1}H-NMR: ($CDC1_3$, 400MHz): δ 7.42 (dd, J=6.0Hz, J-0.8Hz, 6'''-H), 7.36 (dd, J=6.0Hz, J=0.8Hz, 3'''-H), 7.2'8-7.34 (m, 4'''-H), 7.20-7.26 (m, 5'''-H), 7.09'' (s, 8-H), 6.88 (s, 5-H), 6.21 (s, 3-H), 5.23 (s, OCH_2), 2.54 (s, 5''-CH_3), 238 (s, 4-CH_3). ^{13}C-NMR: ($CDC1_3$, 100MHz): δ 165.8, 161.9, 160.3, 159.6, 156.7, 1513, 149.4, 148.1, 146.6, 1453, 140.0, 136.3, 132.4, 127.4, 126.1, 122.1, 119.9, 115.1, 113.0, 109.7, 593, 17.7 and 12.8. Mass (ES): *m/z* 484.7 $[M+H]^+$. Anal. Calcd for : C, 57.04; H, 3.12; N, 8.68 %. Found: C, 56.78; H, 2.96; N, 8.97 %. M.P: 136°C,

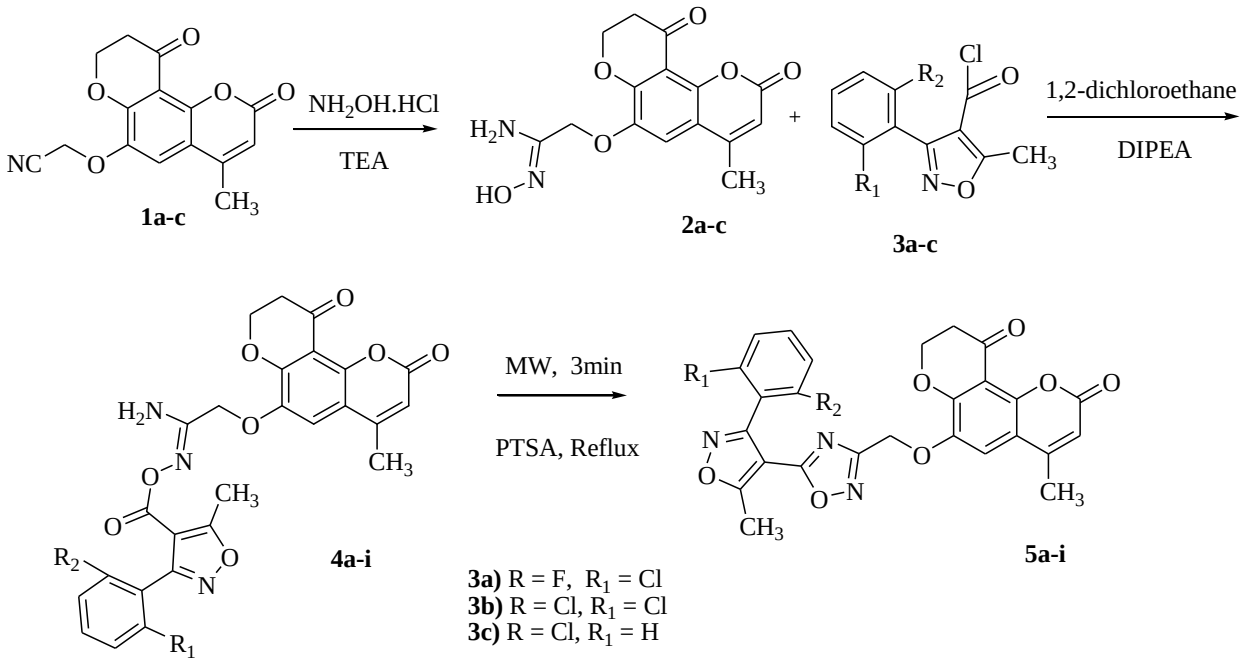
RESULTS AND DISCUSSION

Chemistry

We have successfully eight novel compounds (**5a-i**) in good yields via 8, 9 di hydro 7H benzo 2-(alkyl-2-oxo-2H-chromen-6-yloxy)-N'-hydroxyacetamidine **(2a-c)** by employing the reaction sequences shown in various schemes (**scheme 1).**

The compound 8, 9 di hydro 7H benzo 2-(4,7-dimethyl-2-oxo-2H-chromen-6-yloxy)acetonitrile **(1b)** is dissolved in methanol and Hydroxyl amine hydrochloride refluxed for 2 hr, in presence of triethylamine medium to obtain 8, 9 di hydro 7H benzo 2-(4,7-dimethyl-2-oxo-2H-chromen-6-yloxy)-N'-hydroxy acetamidine (**2b)**. In the ^{1}H-NMR:($CDC1_3$, 400MHz) spectrum of compound **2b** two singlet's at δ 7.27 and δ 7.24 which corresponds to 8-H and 5-H of coumarin moiety, remaining at δ 6.31 (s, 3-H), 4.52 (s, OCH_2), 2.51 (s, 4-CH_3), 2:28 (s, 7-CH_3). In the ^{13}C-NMR: ($CDC1_3$100MHz): peaks at δ 160.0 (2'-C), 153.2 (C-2), 152.8 (C-6), 148.2 (C-4), 146.5 (C-8a), 132.6 (C-7), 118.1 (C-8), 117.2 (Q-4a), 113.7 (C-3), 107.3 (C-5), 67.4 (I'-C), 18.0 (4-CH_3) and 16.1(7-CH_3). Mass (ES): (Fig-4.6) m/z $[M+H]^+$ peak at 263.4. The compound (**2a-c)** and 8, 9 di hydro 7H benzo 3-aryl, 5-methylisoxazole-4-carbonyl chloride **(3a-c)** in 1,2-dichloroethane were refluxed in presence of DIPEA for 4hrs gave a new product, which is identified as 8, 9 di hydro 7H benzo N'-(3-aryl)-5-methylisoxazole-4-carbonyloxy)-2-(4-methyl-2-oxo-2H-chromen-6-yloxy) acetimidamide **(4a-i).** The IR (KBr) spectrum of 8, 9 di hydro 7h benzo N'-(3-(2-chloro-6-fluorophenyl)-5-methylisoxazole-4-carbonyloxy)-2-(4,7-dimethyl-2-oxo-2H-chromen-6-yloxy) acetimidamide **(4d)** showed two sharp peaks at *v* 3491 cm^{-1}, 3356 cm^{-1} due to symmetric and asymmetric stretching vibration of NH_2, the absence of N-OH stretching of **2** and the newly formed ester carbonyl is observed at 1741 cm^{-1} and at 1701cm^{-1} is due to C=O of coumarin. In Mass spectrum**)** $[M+H]^+$ appeared at *m/z* 500.3 confirming the O-acylation.

The reaction sequence employed for the synthesis of title compounds is shown in (**Scheme 1**). Synthesis of 8, 9 di hydro 7H benzo 6-[{5-(3-aryl)-5-methylisoxazol-4yl)-l,2,4-oxadiazol-3-yl}methoxy]-4-methyl- 2H-chromen-2-ones **(5a-i)** is done by both conventional and Micro wave irradiation and the yields were compared. Under micro wave condition the compounds **4a-i** were thoroughly mixed with silica powder and irradiated in micro wave oven at 360 W for 3 min to give (**5a-i).** 8, 9 di hydro 7H benzo N'-(3-aryl)-5-memylisoxazole-4-carbonyloxy)-2-(4-methyl-2-oxo-2H chromen -6-yloxy) acetimidamide **(4a-i)** is refluxed for 4hr in toluene with PTSA to obtain the 8, 9 di hydro 7H benzo 6-[{5-(3-aryl)-5-methylisoxazol-4yl)-l,2,4-oxadiazol-3-yl}methoxy]-4-methyl-2H-chromen-2-ones **(5a-i)**.



3a) R = F, R_1 = Cl
3b) R = Cl, R_1 = Cl
3c) R = Cl, R_1 = H

4, 5 a R_1=Cl, R_2=F, **d** R_1=C_1, R_2=F, **g** R_1=Cl, R_2=F

b R_1=C_1, R_2=C_1, **e** R_1=C_1, R_2=C_1, **h** R_1=C_1, R_2=C_1

c R_1=C_1, R_2=H, **f** R_1=C_1, R_2=H **i** R_1Cl, R_2=H

Scheme-1 Synthesis of title compounds (5a-i).

Antibacterial Activity

All the newly prepared compounds (**5a-i**) were screened for the antibacterial activity is done by the paper disc method. Organisms used: Bacillus rumulis (Gram-Positive) Escherechia coli (Gram-negative).

After solidification of media, petriplates inoculated with actively growing culture of Escherichia coli and Staphylococcus aureus separately as follows. Filter paper discs of 5 mm diameter were dipped in the test solution of different concentrations. After drying the disc, it was kept on Antibiotic med-3 agar in petriplates seeded with 1 ml bacterial culture of Escherichia coli and Staphylococcus aureus and incubated for 24 hrs at 37 °C.

The antibacterial screening data showed that almost all the compounds (5**a-i**) is active and showing moderate to good antibacterial activity. Among the screened **5c**, **5e** and **5h** in which respectively showed high activity against all the micro-organism employed. The activities of these compounds are almost equal to the standards the remaining compounds showed moderate to good antibacterial activity is given by table-1.

Table- 1 Antibacterial activity.

Bacillus rumulis (Gram- Positive) (Conc. µg/mL) Zone of inhibition (mm)						Escherechia coli (Gram-negative) (Conc. µg/mL) Zone of inhibition (mm)					
Comp	200	100	50	25	12.5	Comp	200	100	50	25	12.5
5a	15	11	9	-	-	10a	12	-	10	-	7
5b	17	15	14	10	5	10b	17	14	9	-	9
5c	17	17	-	8	8	10c	13	-	11	-	-
5d	14	9	-	-	-	10d	19	16	13	7	-
5e	19	19	17	-	11	10e	16	17	-	-	6
5f	12	8	-	-	-	10f	18	13	11	9	-
5g	17	15	-	9	5	10g	16	-	-	-	-
5h	16	17	16	13	12	10h	14	15	12	-	-
5i	17	14	-	-	6	10i	14	13	-	13	11
(Ciprofloxacin 100 µg/disc)			20						21		

CONCLUSION

We have successfully synthesized eight 8, 9 di hydro 7H benzo 6-[{5-(3-aryl)-5-methylisoxazol-4yl)-l,2,4-oxadiazol-3-yl}methoxy]-4-methyl- 2H-chromen-2-ones **(5a-i)** with micro wave irradiation via8, 9 di hydro 7H benzo N'-(3-aryl)-5-memylisoxazole-4-carbonyloxy)-2-(4-methyl-2-oxo-2H chromen -6-yloxy) acetimidamide **(4a-i)** in good yields. The structures of all the compounds were confirmed by their spectral data. All the newly synthesized compounds were screened for their MIC and zone of inhibition against two strains of bacteria. Amongst the compounds screened, most of the compounds have shown moderate to good antibacterial and antifungal properties whereas some compounds have shown promising antifungal properties, which were further used to determine MBC and MFC against some selected strains of bacteria and fungi.

ACKNOWLEDGEMENT The financial support provided by University Grants Commission New Delhi, India for Minor Research Project (No F.MRP-7075/16 (SERO/UGC) is greatly acknowledged.

REFERENCES

1. Knorr, L.; Dt, B. Chem. Ges., 1883; 16: 2597.
2. EM Robin; RG David; S Vijayalekshmi. J. Phytochem., 2008; 69(3): 2704-2707.
3. N Gokhan-Kelekci; S Yabanoglu; E Kupeli; U Salgin; O Ozgen; G Ucar; E Yesilada; E Kendi; A Yesilada; AA Bilgin. J. Bioorg. Med. Chem., 2007; 5(17): '5775-5786.
4. L Ronghui; C George; Y Yang; JC Peter; L Shengjian; L Yanhua; A Mary; AR Fuentes-Pesquera; LE Stuart; MG Lee. Bioorg. Med. Chem. Lett., 2007; 17(16): 4557-4561.
5. SG Roelfvan; C Arnold; K Wellnga, J Agric Food Chem., 1979; 84: 406.
6. Rajendra; K Wanare. J. Chem. Pharm. Res., 2011; 3(5): 136-144.
7. Meghasham; N Narule. J. Chem. Pharm. Res., 2011; 3(3): 38-47.
8. HZ Katri; SA Vunii. J. Ind. Chem. Soc., 1981; 55: 168.
9. Singarave; Mohan; Sarkkarai; Ananthan. J. Chem. Pharm. Res., 2011; 3(1): 402-413.
10. G Amr Ael; NA Abdel-Lalif; MM Abdalla. Bioorg. Med. Chem., 2006, 14(2). 373.
11. O Zbek; N Katirciog"lu; H Karacan; T Baykal. Bioorg. Me.d. Chem., 2007; 15: 5105-5109.
12. BK Mahantesha; VK Manohar; PR Vijaykumar; P Harishchandra; SM Sumit; AM Ashwini. Eur. J. Med. Chem., 2002; 45(3): 1151-1157.
13. Borg, S.; Veiling, R. C.; Labarre, M.; Payza, K.; Teenius, L.; Luthanan, K. J. Med. Chem., 1999; 42: 4331-4342.
14. Miranda Bezerra, N. M.; De Oliveira, S. P.; Srivastava, R. M.; da Silva, J. R. Fa rmaco., 2005; 60: 955-960.
15. Liang, G.-B.; Qian, X. Bioorg. Med. Chem. Lett., 1999; 9: 2101-2104.
16. Clapp, L. B. Adu. Heterocycl. Chem., 1976; 20: 65.
17. Lin, Y.; Lang, S. A., Jr.; Lovell, M. F.; Perkinson, N. A. J. Org. Chem., 1979; 44: 4160.
18. Molina, P.; Alajarin, M.; Ferao, A. Synthesis, 1986; 10: 843.
19. Lan Xie, Kun Liu, Hong Lu, Ling Hou, Zhi Qi, Catia Teixeira, Florent Barbault, Bo-Tao Fan, Shuwen Liu and Shibo Jiang, J. Med. Chem., 2008; 57: 7843-7854.
20. Leslie J. Street, Raymond Baker, Tracey Book, Clare O. Kneen, Angus M. MacLeod, Kevin J. Merchant, Graham A. Showell, John Saunders, Richard H. Herbert, Stephen B. Freedman and Elizabeth A. Harley, J. Med. Chem., 1990; 33: 2690-2697.