March 2010 ISSN: 0974 - 7516 Volume 6 Issue 1

Trade Science Inc.

Organic CHEMISTRY

An Indian Journal

Full Paper

OCAIJ, 6(1), 2010 [122-127]

# A novel synthesis and antimicrobial activity of new coumarin derivatives

**K.Narasimha Sarma*, M.C.S.Subha, K.Chowdoji Rao**

**Department of Chemistry, Sri Krishnadevaraya University, Anantapur - 515003, A.P., (INDIA)**

**E-mail : organic_sarma @rediffmail.com; mcssubha@rediffmail.com**

*Received: 8th February, 2010 ; Accepted: 18th February, 2010*

## ABSTRACT

A series of new coumarine derivatives (**6a-h**) were synthesized from N-(6-bromo-2-oxo-2H-chromen-3-yl) acetamide (**1**). The synthetic stages involved condensation of phenylboronic acid (**2**) with N-(6-bromo-2-oxo-2H-chromen-3-yl)acetamide (**1**) (**Suzuki coupling**) yielded N-(2-oxo-6-phenyl-2H-chromen-3-yl)acetamide (**3a-c)** followed by the deportation in presence of base (or) acid media gives 3-amino-6-phenyl-2H-chromen-2-one (**4a-c**), finally compound (**4a-c**) coupling with the Adehydes to get coumarine derivatives of Schiff-bases (**6a-h**) and characterized through IR, $^{1}$H-NMR, $^{13}$C-NMR, Mass spectral data and elemental analysis. The synthesized compounds (**6a-h**) have been screened for antimicrobial activity.



## KEYWORDS

N-(6-bromo-2-oxo-2H-chromen-3-yl)acetamide (**1**);
Suzuki coupling products (**3a-c)**;
3-amino-6-phenyl-2H-chromen-2-one (**4a-c**);
Schiff-bases (**6a-h)**.

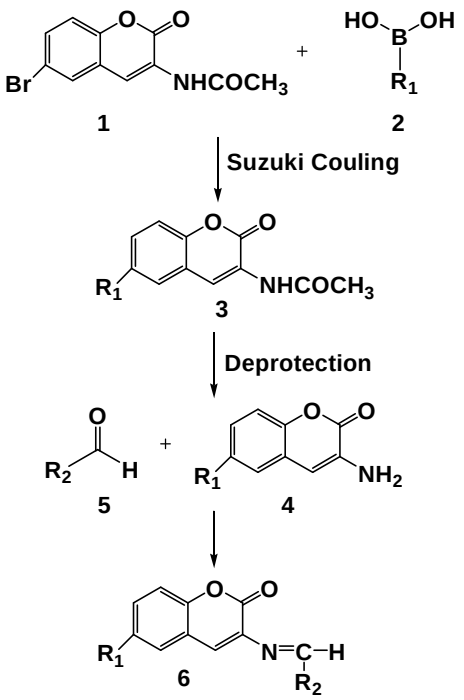
## INTRODUCTION

Coumarin and its derivatives represent one of the most active classes of compounds possessing a wide spectrum of biological activity. Many of these compounds have proved to be active as antimicrobial[1-5], antitumor[6-7], anticoagulant[8] and antiinflammatory[9]. In addition, these compounds are used as additives to food and cosmetics[10]. Dispersed fluorescent and laser[11]. Various analogues of 3-subsituted coumarins such as 3-aminocoumarins exhibit antimicrobial activity[12-13]. From the above line of reasoning we directed this paper towards synthesis of various coumarine derivatives of biological interest using N-(6-bromo-2-oxo-2H-chromen-3-yl)acetamide (**1**) as a key starting material.

## RESULTS AND DISCUSSION

The reaction sequences employed for the synthesis of title compound is shown in Scheme 1. The key intermediates N-(2-oxo-6-phenyl-2H-chromen-3-yl) acetamide (**3a-c**), 3-amino-6-phenyl-2H-chromen-2-one (**4a-c**) required for the preparation of the target compound. The new coumarin derivatives was obtained by the condensation of phenylboronic acid (**2**) with N-(6-bromo-2-oxo-2H-chromen-3-yl) acetamide (**1**) in THF into that added triethyl amine and PdCl2 (PPh3)2 and allowed the reaction to heat under reflux for 1hrs. Cooled the reaction mass, into that added water adjust pH-7 product isolated by ethyl acetate and dried Na2SO4 and concentrated up to 2vol into that charged heptanes, N-(2-oxo-6-phenyl-2H-chromen-3-yl) acetamide (**3a-c**) isolated by filtration with good yields(76%). The compound (**3a-c**) treated with acids (or) base at 20-25°C to give 3-amino-6-phenyl-2H-chromen-2-one (**4a-c**). Finally free amine coumarin compound (**4a-c**) react with appropriate aldehyde in absolute ethanol, containing a catalytic amount of piperidine offered good yields of coumarine derivatives of Schiff-Bases (**6a-h**).

The structural elucidation of new compounds were




**Scheme 1 : The synthesis of the title compounds**

| Sr.No. | $R_1$ | $R_2$ |
|---|---|---|
| a | $B(OH)_2$ | CHO |
| b | $B(OH)_2$ | CHO |
| c | $F_3C$, $B(OH)_2$ | S, CHO |
| d | $B(OH)_2$ | S, CHO |
| e | $B(OH)_2$ | S, CHO |
| f | $F_3C$, $B(OH)_2$ | CHO |
| g | $B(OH)_2$ | O, CHO |
| h | $B(OH)_2$ | CHO |

based on their elemental analysis and spectral (IR, $^1$H-NMR and mass) data. The characterization data of all the new compounds are summarized in the TABLE 1 and their spectral data are given below.

### N-(2-oxo-6-phenyl-2H–chromen-3-yl)acetamide (3a)

Yield 78%. M.p.: 191-192°C. $^1$H NMR (300 MHz, DMSO) δ 9.91(s, 1H, -NH), 8.7(d, 1H, J = 9Hz, H-5), 8.01(d, 1H, J = 9Hz, H-7), 7.9-7.5(m, 5H, Ar-H), 7.31(d, 1H, H-8), 7.12 (s, 1H, H-4), 2.12(s, 3H,-$CH_3$).$^{13}$C-NMR (75 MHz, DMSO) δ 166.21, 159.33, 148.90, 135.52, 134.23, 133.21, 130.19, 128.90, 129.41, 127.61, 127.32, 126.11, 125.33, 123.52, 122.04, 115.7, 23.82. Elemental analysis: Calcd. (%) for $C_{17}H_{13}NO_3$: C, 73.11; H, 4.69; N, 5.02. Found: C, 73.56; H, 4.88; N, 5.20. LC-MS (m/z): 280.12 (M, 100%).

**TABLE 1 : Antimicrobial activity of the title compounds (3a-c) and (6a-h)**

| Compd. | Zone of inhibition in mm | | | | | |
|---|---|---|---|---|---|---|
| | Antibacterial activity | | | Antifungal activity | | |
| | *E-coli* | *P. aeruginosa* | *S. aureus* | *A. niger* | *A. flavus* | *A. terrus* |
| 3a | 16 | 16 | 15 | 18 | 23 | 15 |
| 3b | 15 | 18 | 19 | 16 | 24 | 13 |
| 3c | 18 | 16 | 15 | 21 | 22 | 15 |
| 6a | 14 | 18 | 17 | 15 | 20 | 14 |
| 6b | 17 | 16 | 18 | 17 | 21 | 12 |
| 6c | 19 | 19 | 19 | 15 | 19 | 15 |
| 6d | 14 | 22 | 15 | 21 | 28 | 15 |
| 6e | 16 | 15 | 21 | 16 | 18 | 17 |
| 6f | 15 | 21 | 14 | 15 | 29 | 14 |
| 6g | 14 | 17 | 15 | 16 | 17 | 15 |
| 6h | 17 | 18 | 16 | 17 | 18 | 17 |
| Getamycine | 20 | 24 | 22 | - | - | - |
| Fluconazole | - | - | - | 22 | 30 | 18 |
| DMSO | Nil | Nil | Nil | Nil | Nil | Nil |

### N-(2-oxo-6-p-tolyl-2H–chromen-3-yl)acetamide (3b)

Yield 77%. M.p.: 199-201°C. $^1$H NMR (300 MHz, DMSO) δ 9.93(s, 1H, -NH), 8.67(d, 1H, J = 9Hz, H-5), 8.11(d, 1H, J = 9Hz, H-7), 7.89-7.65(m, 4H, Ar-H), 7.31(d, 1H, H-8), 7.12(s, 1H, H-4), 2.36(s, 3H, -$CH_3$), 2.12(s, 3H, -$CH_3$).$^{13}$C-NMR (75 MHz, DMSO) δ 165.91, 158.33, 149.90, 135.52, 135.23, 134.21, 131.19, 129.10, 129.45, 127.61, 127.12, 127.11, 125.33, 123.52, 122.04, 117.7, 24.52, 23.98. Elemental analysis: Calcd. (%) for $C_{18}H_{15}NO_3$: C, 73.71; H, 5.15; N, 4.78. Found: C, 73.66; H, 4.98; N, 4.69. LC-MS (m/z): 294.19 (M, 100%).

### N-(2-oxo-6-(4-(trifluoromethyl)phenyl-2H-chromen-3-yl)acetamide (3c)

Yield 75%. M.p.: 202-204°C. $^1$H NMR (300

MHz, DMSO) δ 9.89(s, 1H, -NH), 8.77(d,1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75 (m, 4H, Ar-H), 7.41(d, 1H, H-8), 7.22(s, 1H, H-4), 2.12 (s, 3H, $-CH_3$). $^{13}$C-NMR (75 MHz, DMSO) δ 166.41, 161.33, 148.90, 135.52, 134.23, 133.21, 130.19, 128.90, 129.41, 127.61, 127.32, 126.11, 125.33, 123.52, 122.04, 115.7, 23.42. Elemental analysis: Calcd. (%) for $C_{18}H_{12}F_3NO_3$: C, 62.25; H, 3.48; N, 4.03. Found: C, 61.98; H, 3.56; N, 4.13. LC-MS (m/z): 348.19 (M, 100%).

**3-(benzylidineamino)-6-phenyl-2H-chromen-2-one (6a)**

Yield 75%. M.p.: 212-214°C. IR (KBr, $cm^{-1}$) 1705 (C = O), 1622 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.59(s, 1H, -H), 8.47(d, 1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75 (m, 5H, Ar-H), 7.41(d, 1H, H-8), 7.32-7.15(m, 5H, Ar-H), 7.12 (s, 1H, H-4), $^{13}$C-NMR (75 MHz, DMSO) δ 163.41, 156.23, 148.90, 135.52, 134.23, 134.11 133.21, 131.1, 130.19, 129.90, 129.51, 129.41, 128.76, 127.61, 127.32, 126.11, 125.33, 124.55, 123.52, 122.04, 115.7, 115.64. Elemental analysis: Calcd. (%) for $C_{22}H_{15}NO_2$: C, 81.21; H, 4.65; N, 4.30. Found: C, 81.35; H, 4.66; N, 4.53. LC-MS (m/z): 326.19 (M, 100%).

**3-(p-tolylidineamino)-6-p-tolyl-2H-chromen-2-one (6b)**

Yield 78%. M.p.: 222-224°C. IR (KBr, $cm^{-1}$) 1745 (C = O), 1632 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.52(s, 1H, -H), 8.43 (d, 1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 4H, Ar-H), 7.41 (d, 1H, H-8), 7.38-7.15(m, 4H, Ar-H), 7.12 (s, 1H, H-4), 2.31(s, 3H, $-CH_3$), 2.27 (s, 3H, $CH_3$) $^{13}$C-NMR (75 MHz, DMSO) δ 164.41, 157.23, 148.60, 135.52, 134.23, 134.11 133.21, 131.1, 130.19, 129.90, 129.51, 129.41, 128.76, 127.61, 127.32, 126.11, 125.33, 124.55, 123.52, 122.04, 115.7, 115.64, 24.54, 23.54. Elemental analysis: Calcd. (%) for $C_{24}H_{19}NO_2$: C, 81.56; H, 5.42; N, 3.96. Found: C, 81.65; H, 5.21; N, 4.23. LC-MS (m/z): 354.40 (M, 100%).

**3-(thiophen-2-ylmethyleneamino-6-(4-(trifluoromethyl)phenyl)-2H-chromen-2-one (6c)**

Yield 76%. M.p.: 216-218°C. IR (KBr, $cm^{-1}$) 1745 (C = O), 1622 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.52(s, 1H, -H), 8.43(d, 1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 4H, Ar-H), 7.41(d, 1H, H-8), 7.22(s, 1H, H-4), 7.21-7.01(m, 3H), $^{13}$C-NMR (75 MHz, DMSO) δ 166.41, 156.23, 148.60, 134.52, 134.23, 134.11 133.21, 131.1, 130.19, 129.90, 129.51, 127.61, 127.32, 126.11, 125.33, 124.55, 123.52, 122.04, 120.55, 115.7, 115.64. Elemental analysis: Calcd. (%) for $C_{21}H_{12}NO_2S$: C, 63.15; H, 3.03; N, 3.51. Found: C, 63.55; H, 3.21; N, 3.61. LC-MS (m/z): 400.36 (M, 100%).

**6-phenyl-3-(thiophen-2-ylmethyleneamino)-2H-chromen-2-one (6d)**

Yield 78%. M.p.: 219-221°C. IR (KBr, $cm^{-1}$) 1735 (C = O), 1632 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.51(s, 1H, -H), 8.43(d,1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 5H, Ar-H), 7.41(d, 1H, H-8), 7.22(s, 1H, H-4), 7.21-7.01(m, 4H, Ar-H), 2.31(s,3H, $CH_3$), $^{13}$C-NMR (75 MHz, DMSO) δ 166.41, 156.23, 148.60, 134.52, 134.23, 134.11, 133.21, 131.1, 130.19, 130, 129.98, 129.90, 129.51, 126.45, 127.61, 127.32, 126.11, 125.33, 124.55, 123.52. Elemental analysis: Calcd. (%) for $C_{20}H_{13}NO_2S$: C, 72.49; H, 3.95; N, 4.23. Found: C, 72.66; H, 4.01; N, 4.56. LC-MS (m/z): 332.36 (M, 100%).

**3-(thiophen-2-ylmethleneamino)-6-p-tolyl-2H-chromen-2-one (6e)**

Yield 76%. M.p.: 225-227°C. IR (KBr, $cm^{-1}$) 1745 (C = O), 1638 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.51(s, 1H, -H), 8.43(d,1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 4H, Ar-H), 7.41(d, 1H, H-8), 7.22(s, 1H, H-4), 7.21-7.01(m, 3H), 2.31(s, 3H, $CH_3$), $^{13}$C-NMR (75 MHz, DMSO) δ 166.41, 156.23, 148.60, 134.52, 134.23, 134.11, 133.21, 131.1, 130.19, 130, 129.98, 129.90, 129.51, 126.45, 127.61, 127.32, 126.11, 125.33, 120.55, 115.7, 24.32. Elemental analysis: Calcd. (%) for $C_{21}H_{15}NO_2S$: C, 73.02; H, 4.38; N, 4.06. Found: C, 73.12; H, 4.11; N, 4.21. LC-MS (m/z): 346.36 (M, 100%).

**3-(p-tolylidineamino)-6-(4-(trifluoromethyl)phenyl) 2H-chromen-2-one(6f)**

Yield 75%. M.p.: 225-227°C. IR (KBr, $cm^{-1}$) 1745 (C = O), 1638 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.51(s, 1H, -H), 8.43(d, 1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 4H, Ar-H), 7.41(d, 1H, H-8), 7.22(s, 1H, H-4), 7.21-7.01(m, 4H, Ar-

H), 2.31(s,3H, $CH_3$), $^{13}$C-NMR (75 MHz, DMSO) δ 166.41, 156.23, 148.60, 134.52, 134.23, 134.11, 133.21, 131.1, 130.19, 130, 129.98, 129.90, 129.51, 128.41, 128.11, 126.91, 126.45, 127.61, 127.32, 126.11, 125.33, 120.55, 115.7, 24.32. Elemental analysis: Calcd. (%) for $C_{24}H_{16}NO_2F_3$: C, 70.76; H, 3.96; N, 3.44. Found: C, 71.10; H, 4.11; N, 3.65. LC-MS (m/z): 408.4 (M, 100%).

**3-(4-methoxybenzylideneamino)-6-p-tolyl-2H-chromen-2-one(6g)**

Yield 75%. M.p.: 235-237°C. IR (KBr, $cm^{-1}$) 1745 (C = O), 1638 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.51(s, 1H, -H), 8.43(d,1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 4H, Ar-H), 7.41(d, 1H, H-8), 7.22(s, 1H, H-4), 7.21-7.01(m, 4H, Ar-H),3.79(s,3H,-O-$CH_3$) 2.31(s,3H, $CH_3$), $^{13}$C-NMR (75 MHz, DMSO) δ 166.41, 156.23, 148.60, 134.52, 134.23, 134.11, 133.21, 131.1, 130.19, 130, 129.98, 129.90, 129.51, 128.41, 128.11, 126.91, 126.45, 127.61, 127.32, 126.11, 125.33, 120.55, 56.34, 24.32. Elemental analysis: Calcd. (%) for $C_{24}H_{19}NO_3$: C, 78.03; H, 5.18; N, 3.79. Found: C, 78.10; H, 5.18; N, 3.65. LC-MS (m/z): 370.4 (M, 100%).

**6-phenyl-3-(p-tolylidineamino)-2H-chromen-2-one (6h)**

Yield 78%. M.p.: 222-224°C. IR (KBr, $cm^{-1}$) 1745 (C = O), 1632 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.52(s, 1H, -H), 8.43(d,1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 5H, Ar-H), 7.41(d, 1H, H-8), 7.38-7.15(m, 4H, Ar-H), 7.12(s, 1H, H-4), 2.31(s,3H,-$CH_3$), $^{13}$C-NMR (75 MHz, DMSO) δ 164.41, 157.23, 148.60, 135.52, 134.23, 134.11 133.21, 131.1, 130.19, 129.90, 129.51, 129.41, 128.76, 127.61, 127.32, 126.11, 125.33, 124.55, 123.52, 122.04, 115.7, 115.64, 23.54. Elemental analysis: Calcd. (%) for $C_{23}H_{17}NO_2$: C, 81.40; H, 5.05; N, 4.13. Found: C, 81.65; H, 5.21; N, 4.23. LC-MS (m/z): 340.29 (M, 100%).

**Antibacterial and antifungal activity**

The *in vitro* antimicrobial activity was carried out against 24hrs old cultures of three bacteria and three fungi by cup-plate mathod[14]. Compounds (**3a-c**) & (**6a-h**) has been tested for their antimicrobial activity against *E.coli, P.aeruginosa and S.aureus* and and antifungal activity against *A.niger, A.flavus* and *A.terrus* at a concentration of 1000µg/ml in distilled DMSO using cup plate diffusion method. Nutrient agar and potato dextrose agars were used to culture the bacteria and fungus respectively. The solution of Getamycine 1000µg/ml and Fluconazole 1000µg/ml were prepared in sterilized water and used for standards for comparison of antibacterial and antifungal activities respectively the results were discussed in TABLE 1.

The Compounds (**3c**) and (**6c**) exhibiting good activity against *E.coli* and compounds (**6d**) and (**6f**) showing good activity of against *P.aeruginosa*, and compounds (**6e**) showing good activity against *S.aureus*. All remaining compounds exhibited moderate activity against all the organisms used for screening.

In anti-fungal activity the compounds (**3c**) and (**6d**) exhibited excellent activity against *A.niger* and compounds (**6d**) and (**6f**) exhibiting good activity against *A.flavus* and compounds (**6e**) and (**6h**) showed a good activity *A.terrus* and all remaining compounds exhibiting moderate activity against all the three organisms used for screening.

## EXPERIMENTAL

The melting points were determined in open capillaries. The purity of the compound was checked by the thin layer chromatography (TLC) on a silica-coated aluminium sheet (silica gel $60F_{254}$) using dichloromethane and methanol (8:2, v/v). The IR spectra were recorded on a Nicolet Avatar 330-FTIR spectrometer. The $^1$H- and $^{13}$C-NMR (**3a-c**) & (**6a-h**) spectra was recorded on a Varian 300 MHz NMR spectrometer using TMS as the internal standard the chemical shift (δ) are reported in ppm and the signals are described as singlet (s), doublet (d), triplet (t), quartet (q), broad (br) and multiplet (m). The FAB mass spectra were recorded on Jeol SX 102/DA-6000 spectrophotometer/data system using argon/xenon (6 KV, 10mA) FAB gas, at 70eV. Elemental analysis was carried out a flash EA 1112 Series, CHNSO analyzer (Thermo). The solvent and reagents were purchased from commercial venders in the appropriate grade and were used without purification.

Full Paper

**General procedure for the preparation of N-(2-oxo-6-phenyl-2H-chromen-3-yl) acetamide (3a-c)/ Suzuki coupling reaction**

To solution of phenylboronic acid (**2**) (0.0011mole) with N-(6-bromo-2-oxo-2H-chromen-3-yl)acetamide (**1**) (0.001mol), triethyl amine (3 eq.) in a dry THF. Into that added $PdCl_2(PPh_3)_2$, stirred for 4-5hrs at reflux temperature, reaction monitored by TLC technique upto completion. After the reaction completion, into that charged ice water and adjust pH-6 to7 by using diluted acid product extracted with ethyl acetate and dried $Na_2SO_4$ and distill completely, purified by silica column chromatography technique with methanol & dichloromethane with good yield (78%). The $^1$H-NMR (300 MHz) spectra of N-(2-oxo-6-phenyl-2H-chromen-3-yl) acetamide (**3a**) recorded in DMSO-$d_6$ shows δ 9.91(s, 1H, -NH), 8.7(d, 1H, J=9Hz, H-5), 8.01(d, 1H, J=9Hz, H-7), 7.9-7.5(m, 5H, Ar-H), 7.31(d, 1H, H-8), 7.12(s, 1H, H-4), 2.12(s, 3H, -$CH_3$).

**General procedure for the preparation of 3-amino-6-phenyl-2*H*-chromen-2-one (4a-c)**

To solution of N-(2-oxo-6-phenyl-2H-chromen-3-yl) acetamide (**3a**) in a 20% IPA in HCl (or) Methanolic sodium hydroxide solution stirred at 20-25°C for 1-2hrs, reaction monitored by TLC technique upto completion. After the reaction completion, adjest pH-7 and solvent is removed by vacuum into that charged ice cold water, product extracted with ethyl acetate and dried $Na_2SO_4$ and distill under vacuum, purified by silica column chromatography technique with methanol & dichloromethane with good yield (96%). The $^1$H-NMR (300 MHz) spectra of 3-amino-6-phenyl-2H-chromen-2-one (**4a**) shows disappearance of –CH3 peak at δ 2.12(s, 3H, -$CH_3$).

**General procedure for preparation of schiff base (6a-h)**

To solution of 3-amino-6-phenyl-2H-chromen-2-one (**4a**) (0.001mol) and benzoldehyde (0.001mol) in ethanol, into that added catalytic of piperidine. The reaction mixture reflux for 5-6hrs, reaction monitored by TLC technique upto completion. After the reaction completion reaction mixture cooled to 0-5°C and solids collected by filtration technique, with good yield (76%) and recrystalized by ethanol. The same procedure for the preparation of compounds (**6a-h**). The structure of 3-(benzylidineamino)-6-phenyl-2*H*-chromen-2-one (**6a**) was conformed by the below analytical data**.**

IR (KBr, $cm^{-1}$) 1705 (C = O), 1622 (C = N), $^1$H NMR (300 MHz, DMSO) δ 8.59(s, 1H, -H), 8.47 (d, 1H, J = 9Hz, H-5), 8.21(d, 1H, J = 9Hz, H-7), 7.99-7.75(m, 5H, Ar-H), 7.41(d, 1H, H-8), 7.32-7.15 (m, 5H, Ar-H), 7.12(s, 1H, H-4), $^{13}$C-NMR (75 MHz, DMSO) δ 163.41, 156.23, 148.90, 135.52, 134.23, 134.11 133.21, 131.1, 130.19, 129.90, 129.51, 129.41, 128.76, 127.61, 127.32, 126.11, 125.33,124.55, 123.52, 122.04, 115.7, 115.64. Elemental analysis: Calcd. (%) for $C_{22}H_{15}NO_2$: C, 81.21; H, 4.65; N, 4.30. Found: C, 81.35; H, 4.66; N, 4.53. LC-MS (m/z): 326.19 (M, 100%).

## CONCLUSION

The successful synthesis of series of title compounds and evaluation of the antimicrobial activity of Coumarine derivatives of schiff-bases were reported. From the results of the antimicrobial activity is due to the presence of both coumarines and Schiff-bases in the structure.

## ACKNOWLEDGEMENT

The author are grateful to the NMR Research Center II Sc., Bangalore for providing the NMR & Mass spectral data and Central Library center II Sc., Bangalore for providing for the Literature survey.

## REFERENCES

**[1]** Shriram Bairagi, Ashok Bhosale, Meenakshi N.Deodhar; E.Journal of Chemistry, **6(3)**, 759 **(2009)**.
**[2]** A.Zalfiqar, H.Nasim; Indian J.Chem.B, **46**, 13222 **(2007)**.
**[3]** S.Bernadette, A.Denis, K.Kevin; Inorg.Chim.Acta., 3976 **(2006)**.
**[4]** M.A.Al-Haiza, M.S.Mostafa, M.Y.El-Kady; Scientific Journal of King, Faisal University, **6(1)**, 1426 **(2005)**.

**[5]** A.M.El-Agrody, M.S.Abd, N.El-Latif, A.El-Hady, A.H.Fakery, A.H.Bedair, Molecules, **6**, 519 **(2001)**.
**[6]** L.Raev, E.Voinov, I.Ivanov, D.Popov; Chem.Abstr., 114 **(1990)**.
**[7]** Z.M.Nofal, M.El-Zahar, S.Abd El-Karim; Molecules, **5**, 99 **(2000)**.
**[8]** I.Manolov, N.D.Danchev; Eur.J.Med.Chem. Chim.Ther., **30(6)**, 531 **(1995)**.
**[9]** A.A.Emmanuel-Giota, K.C.Fylaktakidou, D.J.Hadjipavlou-Litina, K.E.Litinas, D.N.Nicolai- des; J.Heterocyclic Chem., **38(3)**, 717 **(2001)**.
**[10]** R.O.Kennedy, R.D.Thornes; Coumarins: Biology, Applications and Mode of Action, Wiley & Sons, **(1997)**.
**[11]** M.Zahradnik; The Production and Application of Flourescent Brightening Agent, Wiley & Sons, **(1992)**.
**[12]** S.Srirupa, S.Versha; Journals of Indian Chem.Soc., **66**, 166 **(1989)**.
**[13]** A.Kumar, M.Verma, A.K.Saxena, K.Shanker; Indian J.Chem.B, **26**, **(1987)**.
**[14]** A.R.Sandane, K.Rudresh, N.D.Satyanarayana, S.P.Hiremath; Indian. J.Pharm.Sci., **60**, 379 **(1998)**.