Available online www.jocpr.com

Journal of Chemical and Pharmaceutical Research, 2012, 4(4):1947-1949

Research Article

ISSN : 0975-7384
CODEN(USA) : JCPRC5

Synthesis and characterization of 3-(4-{[(substituted phenyl) methylene]amino}phenyl)-6-bromo-2-methylquinazoline-4-one

Deepa Gor[1], Pinka Patel[1], Manan Shah[2] and P. S. Patel*[3]

[1]K. K Shah Jarodwala Maninagar Science College, Ahmedabad, India
[2]Kankaria School No. 9, Ahmedabad, India
[3]Department of Chemistry, Sheth L.H. Science College, Mansa, India

---

ABSTRACT

Schiff bases have their own importance in biological field. A new series of heterocyclic Schiffbase derived from the refluxes method of quinazolin in presence of ethanol with different aldehydes is developed. The chemical structures of the products are confirmed by IR, NMR and spectral data.

Keywords: Schiff base, quinazolin, aldehydes, recrystallization.

INTRODUCTION

Schiff bases derived from condensation of aromatic aldehydes and aromatic amines form an important group of compounds in synthetic chemistry due to their useful physical and chemical properties and large number of reactions they undergo. Schiff bases are also used widely in pharmaceutical industry and have interesting pharmacological activities [1-5].

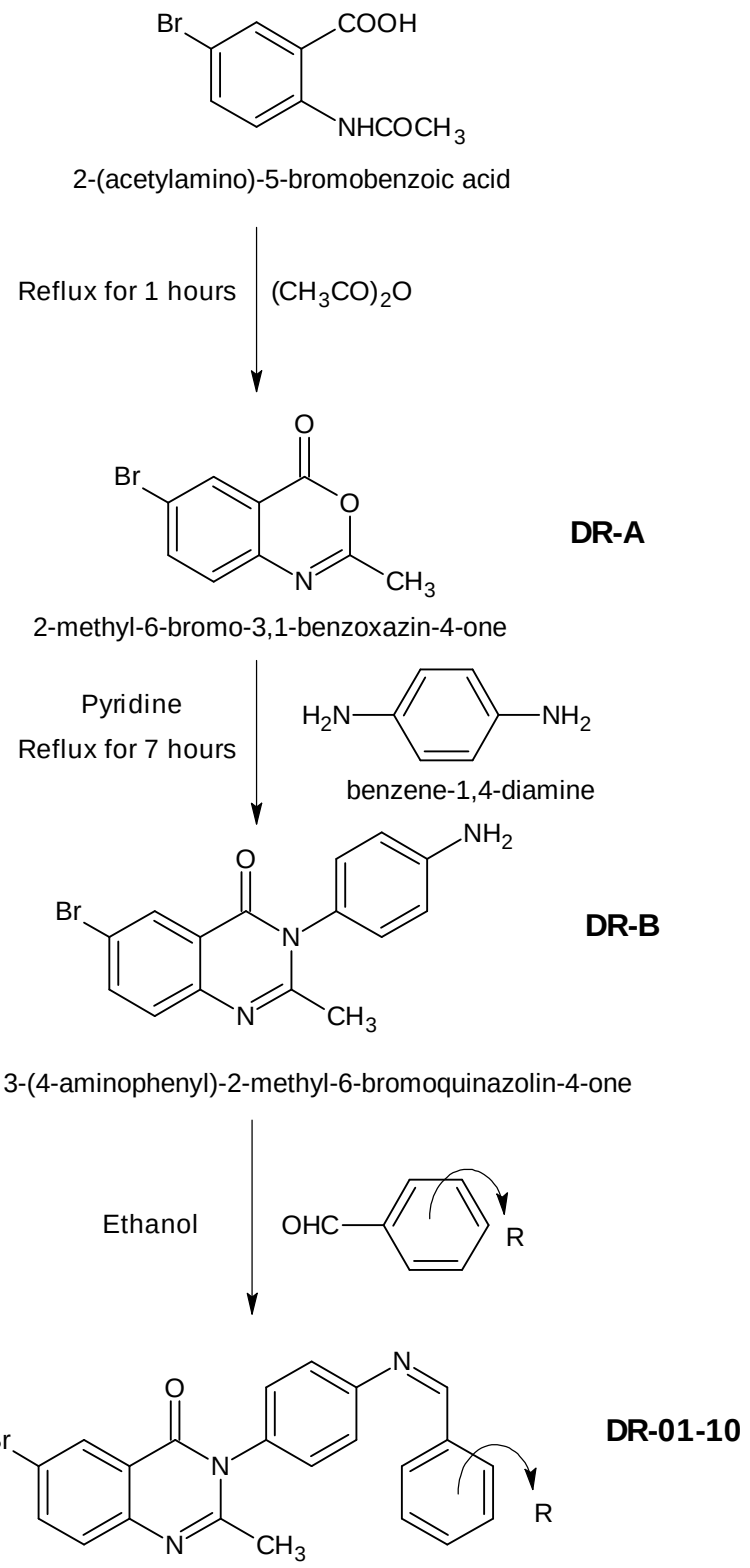
Among the organic reagents actually used, Schiff bases possess excellent characteristics, structural similarities with natural biological substances, relatively simple preparation procedures and the synthetic flexibility that enables design of suitable structural properties . Many biologically important Schiff bases have been reported in the literature possessing ,antibacterial ,antifungal ,antimicrobial, anticonvulsant, anti HIV , anti-inflammatory , antitumor and catalytic activities. [6-11]

EXPERIMENTAL SECTION

Melting points were taken in open capillary tube and were uncorrected. IR spectra(KBr) were recorded on I.R. Spectrophotometer of Buck scientific Model No. 500 and instrument used for NMR Spectroscopy was DUL 13C-1, 300 MHz and tetramethyl silane used as internal standard. Solvent used were $CDCl_3$ and DMSO. Purity of the compounds were checked by TLC on silica- G plates.

Preparation of 6-bromo-2-methyl-3,1-benzoxazin-4-one (DR-A).
In a 250 ml Round bottom flask take a mixture of 2-(acetylamino)-5-bromobenzoic acid (0.1M) and acetic anhydride 36 ml. Then the reaction mixture was refluxed for 1 hour. The solid product which was separated on cooling. The yield of the product was 84% and the product melts at 130°C. Found: (45.01%) H(2.49%) N(5.78%), Calcd. for $C_9H_6BrNO_2$: C(45.03%) H(2.52%) N(5.83%).

Reaction Scheme



Preparation of 3-(4-aminophenyl)-6-bromo-2-methyl quinazolin-4-one (DR-B).

In a 250 ml conical flask (equipped with a reflux condenser) a mixture of 6-bromo-2-methyl-3,1-benzoxazin-4-one (0.1M), benzene-1,4-diamine (0.1M), 25 ml pyridine and about one pellet of KOH was placed and was heated on sand bath for 7-8 hours. The mixture was then poured in ice. The precipitates were collected, washed with 10% HCl and re-crystallized from ethanol. The yield of the product was 78% and the product melts at 220°C. Found: C(54.52%) H(3.61%) N(12.70%), Calcd. for $C_{15}H_{12}BrN_3O$: C(54.56%) H(3.66%) N(12.73%),IR (KBr) ; (cm-1) : 3070(=C-H, aromatic), 2907(-C-H, Stretch), 1680(>C=O), 1614(>C=N-), 1517(>C=C<, aromatic ring), 1377(CH_3, bend), 1305(C-N), 551(C-Br). ^{1}H NMR (DMSO): 0.9091, singlate (3H) (-CH_3), 3.9170, singlate (2H) (-NH_2), 6.7709-8.2349, multiplate (7H) (Ar-H).

Preparation of 3-(4-{[(substitutedphenyl)methylene] amino}phenyl)-6-bromo-2-methylquinazolin-4-one (DR-01-10).

To a solution of 3-(4-aminophenyl)- 6-bromo-2-methylquinazolin-4-one (0.01M) in absolute ethanol (60 ml), substitutedbenzaldehyde (0.01M) and a few drops of glacial acetic acid were added and the mixture refluxed for 10 h. It was then cooled, concentrated and poured into crushed ice and filtered. The product thus obtained was purified by recrystallization from methanol to get compound 3-(4-{[(substitutedphenyl)methylene] amino}phenyl)-6-bromo-2-methylquinazolin-4-one. IR (KBr)(DR-09) ; (cm-1) : 3350(-OH), 3064(=C-H, aromatic), 2926(-C-H, Stretch), 1681(>C=O), 1614(>C=N-), 1539(>C=C<, aromatic ring), 1373(CH_3, bend), 1338(C-N), 1276(C-O-C), 540(C-Br). $_1$H NMR (DMSO); (DR-09): 0.9066, singlate (3H) (-CH_3), 3.9421, singlate (3H) (-OCH_3), 8.3756, singlate (1H) (-N=CH-Ar), 6.5501-8.4065, multiplet at (11H) (Ar-H).

Table-1 Physical constant of 3-(4-{[(substitutedphenyl)methylene]amino}phenyl)-6-bromo-2-methylquinazolin-4-one

No.	Sub. No.	R	Molecular Formula	Mol. Wt. (g/m)	Yield (%)	M. P. ^{0}C	Carbon (%)		Hydrogen (%)		Nitrogen (%)	
							Found	required	Found	required	Found	required
1	DR-1	-2-Cl	$C_{22}H_{15}BrClN_3O$	452.73	78	142	58.34	58.36	3.31	3.34	9.25	9.28
2	DR-2	-4-Cl	$C_{22}H_{15}BrClN_3O$	452.73	79	140	58.35	58.36	3.30	3.34	9.26	9.28
3	DR-3	-3-OCH_3,-4-OCH_3	$C_{24}H_{20}BrN_3O_3$	478.33	85	150	60.22	60.26	4.19	4.21	8.75	8.78
4	DR-4	-H	$C_{22}H_{16}BrN_3O$	418.28	79	180	63.14	63.17	3.83	3.86	10.01	10.05
5	DR-5	-2-OH	$C_{22}H_{16}BrN_3O_2$	434.28	81	168	60.80	60.84	3.68	3.71	9.64	9.68
6	DR-6	-3-OCH_3,-4-OH	$C_{23}H_{18}BrN_3O_3$	464.31	80	130	59.45	59.50	3.88	3.91	9.01	9.05
7	DR-7	-4-OH	$C_{22}H_{16}BrN_3O_2$	434.28	75	145	60.80	60.84	3.68	3.71	9.64	9.68
8	DR-8	-4-$N(CH_3)_2$	$C_{24}H_{21}BrN_4O$	461.35	77	127	62.43	62.48	4.54	4.59	12.11	12.14
9	DR-9	-4-OCH_3	$C_{23}H_{18}BrN_3O_2$	448.31	76	118	61.60	61.62	4.01	4.05	9.34	9.37
10	DR-10	-3-NO_2	$C_{22}H_{15}BrN_4O_3$	463.28	82	160	57.01	57.04	3.22	3.26	12.05	12.09

Acknowledgement

The authors are thankful to the Principal Dr. Rutesh R. Shah and Management of K.K.Shah Jarodwala Maninagar Science Colledge, Ahmedabad for providing research Facilities.

REFERENCES

[1] Cimerman Z, Miljanic S, and Galic N, *Croatica Chemica Acta*, **2000**, 73 (1), 81- 95.
[2] Singh P, Goel R L and Singh B P, *J. Indian Chem. Soc*., **1975**, 52, 958.
[3] Perry B F, Beezer A E, Miles R J, Smith B W, Miller J and Nascimento M G, *Microbois.* ,**1988**, 45, 181.
[4] Elmali A, Kabak M and Elerman Y, *J. Mol. Struct*., **2000**, 477, 151.
[5] Patel P R, Thaker B T and Zele S, *Indian J. Chem*., **1999**, 38 A, 563.
[6] DaverM. Boghaei and Sajjad Mohebi, *Tetrahedron,* **2002**,58 ,5357-5366.
[7] Fam Vin‘ Tkhai, A.V. Tarakanova, O.V. Kostyuchenko, B.N. Tarasevich, N.S. Kulikov and A.V. Anisimov, *Theoretical Foundations of Chemical Engineering,* **2008**, 42(5),636-642.
[8] Sun Hwa Lee, Li Xu, Byeong Kwon Park, Yuri V. Mironov, Soo Hyun Kim, *Chem. Eur. J.***2010**, 16,4678-4685
[9] O.V. Kotova,, S.V. Eliseva, A.S. Averjushkin, L.S.Lepnev, A. A. Vaschenko, *Russian Chemical Bulletin, Int Ed.,* **2008**,57(9), 1880-1889.
[10] Amit Kumar, Gopal S. Mishra and Anil Kumar, *Transition Metal Chemistry*, **2003**,28,913-917.
[11] Trissa Joseph, Dhanashree P Sawant, C.S. Gopinath, S.B. Halligudi, *Journal of Molecular Catalysis A: Chemical* **2002**,184, 289-299.