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Research Article

SYNTHESIS, CHARACTERIZATION AND BIOLOGICAL EVALUATION OF SOME SCHIFF BASES FROM 2-AMINO THIAZOLE WITH HETEROCYCLIC CARBALDEHYDE BY BROWNSTD ACID AS CATALYST

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A B S T R A C T

A novel derivatives of schiff bases were synthesized from some heterocyclic aromatic aldehydes with 2-Amino Thaizole in presence of methane sulfonic acid Which was synthesized from substituted phenacylbromides with thiourea in acid medium . All the newly synthesized compounds were evaluated by advanced spectroscopic data (^{1}H NMR, ^{13}C NMR &LC-MS) and the structural determination can be estimated by elemental analysis. Besides all the newly synthesized compounds were examined by their biological activity.

INTRODUCTION

A Schiff bases (or azomethine) is a functional group that contains a carbon, nitrogen double bond with the nitrogen atom connected to an aryl (or) group but not hydrogen [1-2].

In this Schiff's base possess 2- aminothiazole and Indole -3-carbaldehyde.BOH of the compounds shows biological activity. This Schiff's base aromatic hetero bicyclic structure of Indole containing a strong Pharmaco dynamic nucleus where as 2- aminothiazole is five membered hetero cyclic ring. Both compounds of Schiff bases exhibit a wide spectrum of biological activities such as antimicrobial [3-5], antifungal [6], anticancer [7], analgesics [8-11] ,antioxidant activity [12-13], anticonvulsant [14-15]. Purity of compounds was ascertained by the thin layer chromatography(TLC), all the synthesized compounds gave satisfactory elemental analysis,1H NMR spectra were consistent with the assigned structures[16].

The synthesized compounds scaffold's was screened for antimicrobial activity, antifungal activity [17]. 2-amino thiazole, Schiff bases[18] and its derivatives are synthesized in the present work.

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Experiment

All the chemical and synthetic grade reagents were purchased from SD fine and Sigma Aldrich chemicals. The melting point of all newly synthesized compounds was determined in open capillary tube and is uncorrected.

The ^{1}HNMR, ^{13}C NMR spectra ($CDCl_3$) were recorded on Brucker (400MHz) spectrometer using TMS as internal and also chemical shift expressed in δ ppm.Molecular weight of synthesized compounds was estimated by LCMS spectrometry. Purity of all synthesized compounds was monitored by thin layer chromotography and iodine was used as visualizing agent.

Procedure for synthesis of 2-Amino Thaizole

A mixture of a substituted phencyl bromide (1m mol) and Thiourea (1.5m mol) was taken in mortor and mixture was grinded with pistle. After completion of the grinded with mixture, the sample of the mixture was monitored by the thin layer chromotography (4:6, Ethyl acetate: n-hexane). The mixture taken in ethyl acetate and washed with saturated solution of sodium carbonate .The solvent can be distilled by using vacuum pump. Final product was obtained after purification with ethanol.

Characterization

2-Amino Thaizole (a)

Yield of the compound – 92%.

^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 7.78-7.45 (m, 5H, Ar-H).7.37(s, 1H, thiazol ring), 6.69(s, 2H, NH_2) (fig-1).^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 166.9, 137.9, 132.9, 128.7, 128.1, 125.7, 108.0(fig-2). LCMS (m/z): 176.24 (fig-3). Molecular formula: $C_9H_8N_2S$. Elemental analysis: Calculated: C-61.34, H-4.58, N-15.90,S-18.19. Obtained: -61.36,H-4.56,N-15.89,S-18.17.

Methoxy-2-aminothiozoles (3b):
Yield of the compound – 93%.

^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 7.68-7.05 (m, 4H, Ar-H). 7.04 (s, 1H, Thaizole ring), 6.62(s, 2H, NH_2), 3.78 (s, 3H,-OCH_3) (fig-4). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 166.8, 160.6, 138.6, 128.4, 125.3, 114.3, 108.0, 54.9 (fig-5). LCMS (m/z): 206.09 (fig-6). Molecular formula: $C_{10}H_{10}N_2OS$. Elemental analysis: Calculated: C-58.23, H-4.89, N-13.55, O-7.76, S-15.55. Obtained: C-58.27, H-4.88, N-13.54, O-7.75, S-15.54.

4-chloro-2-aminothiazole (3c):
Yield of the compound-92%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 7.73-7.53(m, 4H, Ar-H), 7.07(s, 1H, thiazol ring) (fig-7). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 166.8, 160.6, 138.6, 128.4, 125.3, 114.3, 108.0, 54.9 (fig-8). LCMS (m/z): 305.00 (fig-9) Molecular formula: $C_{18}H_{13}N_3S$ Elemental analysis: Calculated: C-71.26,-4.32, N-13.85,S-10.70. Obtained: C-71.30, H-4.31, N-13.83, S-10.69.

Procedure for the Synthesis of Schiff base

A mixture of equimolar quantities (1m mol) of substituted 2-aminothiozoles and hetero aromatic carbaldehyde (1.2m mol) was dissolved in 20 ml of dry ethanol taken in RB flask and subsequently added catalytic amount methane sulfonic acid (5% mmol)to be mixture. The reaction mixture carried out under RT condition 4 h. The reaction was monitored by TLC. The mixture of the compound with extracted with ethyl acetate and washed with and solution of sodium bicarbonate. Finally product can be obtained by after re-crystallized from ethanol.

1. N-((1H-indol-3-yl)methylene)-5-Phenylthiazole-2-amine(5a):
Yield of the compound - 90%.

^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 11.15(s,1H,NH), 8.62 (s,1H, CH) ,8.18-7.07 (m,8H,Ar-H).) (fig-10). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 165.8, 160.1, 143.1,136.9, 132.6, 130.3, 128.6,1 28.5, 128.1, 126.2, 125.7. 120.6, 119.8, 119.0, 111.1, 102.0 (fig-11). LCMS (m/z): 305.00(fig-12). Molecular formula: $C_{18}H_{13}N_3S$ Elemental analysis: Calculated: C-71.26 ,H-4.32, N-13.85,S-10.70. Obtained: C-71.30, H-4.31, N-13.83, S-10.69.

2.N-((1H-indol-3-yl)methylene))-5-(4-methoxy phenyl)thiazole-2-amine(5b)

Yield of the compound – 91%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 11.19(s,1H,NH), 8.70 (s,1H,CH),8.19-7.45(m,4H,Ar-H),7.37(s,1H,thiazole ring), 7.31-7.03 (s,4H,Ar-H). 3.75(s,3H,-OCH3) (fig-13). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 168.7, 160.5, 159.5, 142.9, 137.0, 129.2, 128.1, 126.2, 125.7, 121.1, 119.2, 118.9, 114.6, 111.0, 101.58, 55.4 (fig-14). LCMS(m/z): 334.05 (fig-15). Molecular formula: $C_{18}H_{12}N_3OS$ .Elemental analysis: Calculated: C-68.45, H-4.53,N-12.60, O-4.80, S-9.62. Obtained: C-68.50, H-4.52, N-12.59, O-4.78, S-9.60.

3.N-((1H-indol-3-yl)methylene)-5-(4-chlorophenyl)thiazol-2-amine (5c):
Yield of the compound – 91%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 11.24(s, 1H, NH), 8.60(s, 1H, NH), 8.21-7.54(m, 5H, Ar-H), 7.38(s, 1H, thiazolring), 7.35-7.01(m, 4H, Ar-H) (fig-16). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 166.8, 160.1, 143.1, 136.9, 132.8, 130.3, 128.6, 128.5, 128.0, 126.6, 125.7, 120.6, 119.3, 118.9, 11.6, 102.0. (fig-17 LCMS(m/z): 338.05(fig-18). Molecular formula: $C_{18}H_{12}ClN_3S$. Elemental analysis: Calculated: C-64.00, H-3.58, Cl-10.49, N-12.44, S-9.49. Obtained: C-64.07, H-3.56, Cl-10.46, N-12.41, S- 9.47.

4.5-phenyl-N-(Thiophene-2-ylmethylene) thiazole-2-amine (5d):
Yield of the compound - 90%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm:7.78-7.43(m,7H,Ar-H),7.74(s,1H,thiazole ring), 7.28(s,1H,=CH),7.17 (t, J=7.6Hz,thiophene ring) (fig-19). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 169.3, 150.7,142.2,132.7,129.5,128.7, 128.1,127.1, 124.8,118.4(fig-20). LCMS(m/z): 269.84(fig-21). Molecular formula:$C_{14}H_{10}N_2S_2$ Elemental analysis: Calculated: C-62.19,H-3.73, N-10.34, S-23.72. Obtained; 62.24, H-3.72,N-10.34, , S-23.70.

5.5-(4-methoxy phenyl)-N-(thiophene-2-ylmethylene) thiazole-2-amine (5e):
Yield of the compound -89%.

^{1}HNMR (400MHz, $CDCl_3$) δ in ppm:7.77(t, J=7.6 Hz,3H,thiophene ring),7.68-7.66(m,2H,Ar-H).7.64(d, J=8.4Hz, thiophene ring)7.62(d, J=7.6Hz,1H. thiophene ring),7.53(s,1H,=CH),7.37 (s,1H, thiophene ring),7.07-7.00(m,2H,Ar-H),3.73(s,3H,OCH3) (fig-22). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 168.8, 160.0, 150.5, 142.7, 140.7, 129.1,128.5,127.9,126.6,125.2,118.4113.6,54.0 (fig-23). LCMS (m/z): 300.22 (fig-24). Molecular formula: $C_{15}H_{12}N_3OS_2$. Elemental analysis: Calculated: C-59.97, H-4.03, N-9.33, O-5.33, S-21.33. Obtained: C-60.02, H- 4.02, N-9.31, O-5.32 ,S-21.33.

6.5-(4-chlorophenyl)-N-(thiophene-2-ylmethylene) Thiazol-2-amine (5f):

Yield of the compound - 90%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm:). 7.74(m,2H,Ar-H),7.68(d, J= 8.4, thiophene ring),7.63(d, J=7.6Hz,thiophene ring),7.51 (s,1H,=CH), 7.37 (s,1H, thophene ring),7.15 (t, J=8.4Hz,2H,thiophene ring), 7.56-7.54(m,2H, Ar-H) (fig-25). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 170.6, 150.7, 142.1, 141.4, 133.4, 130.9, 129.4,129., 128.2, 127.7, 126.4, 118.6 (fig-26), LCMS (m/z):304.38(fig-27). Molecular formula: $C_{14}H_9Cl\ N_2S_2$ .Elemental analysis: Calculated: C-55.16, H-2.98, Cl-11.63,N-9.19,S-21.04; Obtained: C-55.22, H-2.97,Cl-11.61, N-9.18, S-21.02.

7.N-((1H-pyrrole-2-yl)methylene))-5-phenyl hiazole-2-amine (5g):

Yield of the compound – 92%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 11.27(s,1H,NH-pyrrole ring), 8.53 (s,1H, =CH),7.81-7.74(m,5H,Ar-H),7.73 (s,1H,thiazole ring),6.93 (d, J=8.4Hz, 1H, pyrrole ring).6.49(d, J=7.6Hz,1H,pyrrole ring) 6.15(t, J=8.4Hz,2H,pyrrole ring) (fig-28), ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm:170.6, 150.8,

142.5,132.7, 129.1, 128.4, 127.5, 125.8,124.6,118.8, 117.9,110.4 (fig-29). LCMS (m/z): 252.97 (fig-30). Molecular formula: $C_{14}H_{11}N_3S$ .Elemental analysis: Calculated: C-66.38, H-4.38,N-16.59, , S-12.66. Obtained: C-66.43, H-4.37, N-16.57, S-12.64.

8.N-((1H-pyrrole-2-yl)methylene)-5-(4-methoxy phenyl)thiazol-2-amine (5h):

Yield of the compound – 92%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 11.19(s, 1H, NH-pyrrole), 8.76(s, 1H,=CH), 7.72-7.66 (m,2H, Ar-H),7.33(s,1H,thiazole ring),7.12-7.02(m,2H,Ar-H),6.91(d, J=8.4Hz, 1H,pyrrole ring),6.47(d, J=8.4Hz,1H,pyrrole-ring)6.18(t, J=7.6Hz, 2H, pyrrole ring)(fig-31). 13CNMR (100MHz, $CDCl_3$) δ in ppm: 168.3, 158.1,149.7, .2,129.7,127.5,126.4,124.4,118.7,118.5,114.4,110.8,55.5 (fig-32). LCMS (m/z): 283.45(fig-33). Molecular formula: $C_{15}H_{13}N_3OS$ .Elemental analysis: Calculated: C-63.58, H-4.62, N-14.83, O-5.65, S-11.30. Obtained: C-63.64, H-4.61, N-14.85, O-5.64, S-11.30.

9. N-((1 H-pyrrole-2-yl) methylene)-5-(4-chlorophenyl) thiazol-2-amine (5i):

Yield of the compound – 91%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 11.42 (s, 1H, NH-pyrrole ring), 8.52(s, 1H, = CH), 7.71-7.51 (m, 4H, Ar-H)7.29(s,1H,thiazole ring) 6.67(d, J=8.4Hz,1H, pyrrole ring),6.52,(d, J=8.4Hz,1H,pyrrole ring),6.35(t ,J=8.4Hz, 2H,pyrrole ring) (fig-34), ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 170.1, 149.6, 133.6, 132.6, 129.7, 128.6, 127.6, 123.7, 118.8, 118.4, 109.4(fig-35). LCMS (m/z): 28726(fig-36). Molecular formula: $C_{14}H_{10}ClN_3S$. Elemental analysis: Calculated: C-58.43, H-3.50, Cl-12.32, N-14.60, S-11.13. Obtained: C-5849, H-3.49, Cl-12.30, N-14.58, S-11.13.

10.N-(furan-2-yl methylene)-5-phenyl-thiazol-2-amine (5j):
Yield of the compound – 93%, White Solid.

^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 8.47(s,1H,=CH),7.77 (d, J=8.0Hz, 1H, furan),7.75-7.41 (m,5H,Ar-H),7.39 (s,1H,thiazole ring),6.96(d, J=8.4Hz, furan), 6.55(t, J=8.4Hz,furan ring)(fig-37). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm:
170.7,159.7,148.3,145.6,142.1,132.1,128.4,127.4,125.7,11.7,1 17.9,111.6(fig-38). LCMS (m/z): 253.85(fig-39). Molecular formula: $C_{14}H_{10}N_2OS$ .Elemental analysis: Calculated:C-66.12, H-3.96, N-11.02, O-6.29, S-12.59. Obtained: C-66.18, H-3.95, N-11.00, O-6.28, S-12.59.

11.N-(furan-2-yl methylene)-5-(4-methoxyphenyl) thiazol-2-amine (5k):

Yield of the compound – 91%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 8.57(s, 1H,=CH),7.80 (d, J=8.4Hz, 1H, furan ring),7.70-7.65(m, 2H, Ar-H), 7.53(s, 1H, thiazole ring), 7.13-7.03(m, 2H, Ar-H).6.94 (d, J=8.0HZ,1H, furan ring),6.35 (t ,J=7.6Hz,2H,furan ring), 3.61 (s,3H.OCH3)(fig-40). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 167.7, 161.2, 151.2,148.2, 145.3, 142.8, 127.5, 125.2, 118.9, 118.2, 114.6, 112.7, 56.3.(fig-41) LCMS(m/z): 284.46(fig-42). Molecular formula: $C_{15}H_{12}N_2O\ _2S$. Elemental analysis: Calculated: C-63.36, H-4.25, N-9.85, O-11.25, S-11.28. Obtained: C-63.40, H-4.24, N-9.84, O-11.23, S-11.26.

12. 5-(4-chlorophenyl)-N-((furan-2yl methylene)thiazol-2-amine (5l):

Yield of the compound – 92.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 8.41(s, 1H, =CH), 7.78(d, J=8.4Hz, 1H, furan ring), 7.72-7.53(m, 4H, Ar-H), 7.42(s, 1H, thiazol ring), 6.87(d, J=8.4Hz, 1H, furan ring), 6.54(t, J=7.6Hz, 2H, furan ring)(fig-43). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 169.8, 157.5, 151.2, 144.3, 142.2, 132.5, 130.3, 128.7, 127.4, 119.2, 118.3, 111.4(fig-44). LCMS (m/z): 290.23(M+1) (fig-45). Molecular formula: $C_{14}H_9ClN_2OS$. Elemental analysis: Calculated:C-58.23, H-3.14, Cl-12.28, N-9.70, O-5.54, S-11.10. Obtained: C-58.28, H-3.13, Cl-12.27, N-9.69, O-5.53, S-11.09.

13. 5-phenyl-N-(pyridine-2-yl methylene)-thiazol-2-amine (5m):

Yield of the compound – 90%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 8.85(s, 1H, =CH), 8.82(d, J=8.0Hz, 1H, pyridine), 7.86(d, J=7.6Hz, 1H, pyridine), 7.79(s, 1H, thiazole ring), 7.77-5.41(m, 7H, Ar-H) (fig-46). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 170.8, 159.3, 149.7, 147.0, 141.7, 136.4, 134.8, 132.4, 128.7, 127.1, 124.6, 123.7, 117.6(fig-47). LCMS (m/z): 265.14 (fig-48). Molecular formula: $C_{15}H_{11}N_3S$ .Elemental analysis: Calculated:C-67.90, H-4.18, N-15.84, S-12.08. Obtained: C-67.95, H-4.17, N-15.82, S-12.06.

14.5-(4-methoxyphenyl)-N-(pyridine-2ylmethylene) thiazol-2-amine (5n):

Yield of the compound – 90%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 8.71(s, 1H, =CH), 8.57(d, J=8.0Hz, 1H, pyridine), 7.84(d, J=7.6Hz, 1H, pyridine), 7.78-7.56(m, 6H, Ar-H), 7.44(s,1H, thiazol ring), 3.62(s, 3H, OCH_3)(fig-49). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 170.0, 160.2, 157.6, 149.1, 146.9, 141.8, 136.2, 1340.7, 132.1, 128.3, 128.1, 127.3, 124.4, 123.5, 117.9, 55.3 (fig-50). LCMS (m/z): 295.72(fig-51). Molecular formula: $C_{16}H_{13}N_3OS$. Elemental analysis: Calculated: C-65.05, H-4.44, N-14.23, O-5.42, S-10.86. Obtained: C-65.11, H-4.43, N-14.21, O-5.41, S-10.84.

15.5-(4-chlorophenyl)-n-(pyridine-2-ylmethylene) thiazole-2-amine (5o)

Yield of the compound – 90%.
^{1}HNMR (400MHz, $CDCl_3$) δ in ppm: 8.85(s, 1H, =CH), 8.28 (d, J=8.4Hz, 1H, pyridine), 7.85(d, J=8.4 Hz, 1H, pyridine), 7.77-7.54 (m, 6H,Ar-H), 7.43 (s,1H, thiazol ring)(fig-52). ^{13}CNMR (100MHz, $CDCl_3$) δ in ppm: 170.7, 158.2, 149.4, 148.7, 142.5, 136.8, 135.2, 132.8, 129.6,128.3,127.2,124.7, 118.5(fig-53). LCMS (m/z): 299.46(fig-54). Molecular formula: $C_{15}H_{10}Cl\ N_3S$. Elemental analysis: Calculated: C-60.10, H-3.36, Cl-11.83,N-14.00, S-10.70. Obtained: C-60.16, H-3.35Cl-11.81, N-14.00, S-10.69.

Biological activity

The newly synthesized and well characterized compounds (5a-5o) were examined for their anti bacterial activity against Gram positive bacteria (S.aure us and B.subtills). Gram negative bacteria (E.coli and K.pneumonia) using agar diffusion method.

100mL sterile conical flask of nutrient broth was inoculated with the test organisms and incubated at 37 C for 24h .We

using a sterile pipette, 0.6 mL of the broth culture of each test organism was added to 60 mL of molten agar, mixed well and maintained at 47 C. Sterile agar test plates of each test organism were prepared by pouring inoculated medium with uniform thickness. The agar was allowed to set and harden and wells of 4 mm diameter were cut at equidistant using a sterile cork borer. Agar plugs were removed. 100ug/mL of solution (5a-5o) were prepared in DMSO and were introduced into the wells using micropipette. The plates were kept at RT for 2h for better diffusion of solution into the medium .The plates were incubated for24h at 37 C. After incubation the diameter of inhibitory zones formed around each well was measured in millimeter (mm).The assay was carried out in duplicate. DMSO was used as control and the anti bacterial activity of the test compounds was compared with standard "cifloproxin" and the results were presented in Table-I .

Table 1 Zones of inhibition (mm)* of compounds 5(a-o) against tested bacterial strains.

Entry	Compound	Bacterial Strains			
		Gram Positive		Gram Negative	
		S.aure us	B.subtills	E.coli	K.pneumonia
1	5a	16	15	14	15
2	5b	17	18	16	14
3	5c	20	21	19	18
4	5d	18	16	17	18
5	5e	15	16	19	16
6	5f	19	17	20	20
7	5g	14	13	14	13
8	5h	18	15	17	18
9	5i	17	15	18	17
10	5j	13	17	14	15
11	5k	15	16	16	16
12	5l	17	18	19	18
13	5m	18	17	15	16
14	5n	16	17	19	19
15	5o	21	16	20	19
cifloproxin		24	24	22	22

Anti fungal activity

The newly synthesized compounds were examined their anti fungal activity against Aspergillum niger, Candida albicans [19] using agar well diffusion assay.

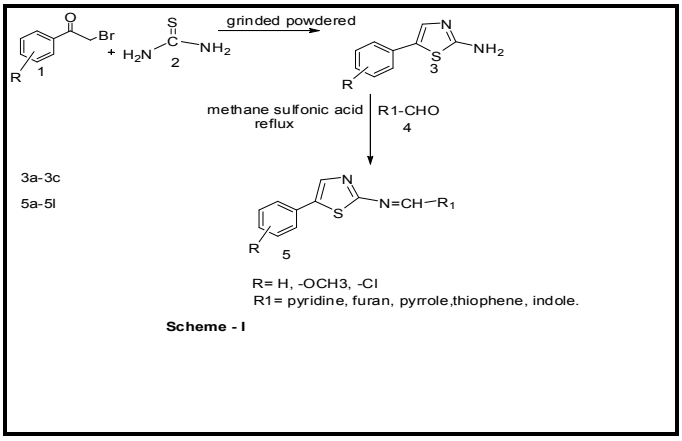
Sterile molten potato dextrose agar (PDA) medium was inoculated with 50 uL of fungal spore suspension asepically, maintained at 45^0C temperature. The inoculated medium was mixed well and pored immediately in sterilized petriplates. When agar solidified, then five wells of 6 mm diameter were punched using sterile borer and filled with 100uL of test compound **(5a-5o)** as well as sterile DMSO 100% as negative control. Plates were incubated for 24 hours at 37 C. Anti fungal activity was determined by measuring the zone of inhibition. The zones produced by the test compound were compared with the ketoconozole as standard drug. The zones of inhibition measured in mm are tabulated-II.

Table II Zone of inhibition (mm)* of compounds (5a-5o) against tested fungal strains.

Entry	Compound	A.niger	C.albicans
1	5a	13	14
2	5b	14	16
3	5c	17	18
4	5d	10	11
5	5e	11	10
6	5f	17	18
7	5g	13	12
8	5h	15	14
9	5i	18	16
10	5j	10	12
11	5k	13	14
12	5l	17	18
13	5m	10	10
14	5n	11	10
15	5o	12	15
Standard		20	20

RESULT AND DISCUSSION

The target compounds were synthesized via the root of as shown in scheme-I. All synthesized compounds were purified by successive re-crystallization using suitable solvents. The purity of the target compounds were checked by TLC (ethyl acetate: n-hexane) [20] and also determining melting points, the target compounds characterized by spectral analysis as ^{1}HNMR, ^{13}CNMR [21] and mass spectra to conform the structures. In this reaction, methane sulfonic acid used as a catalyst. The purpose this catalyst, reaction time is low, enhanced the rate of reaction and also get good yield. The yield of the product was obtained target compounds-89-93%.



Scheme - I

CONCLUSION

Chemical synthesis is an effecting of a variety of various chemical reactions to obtain a several products or product. This occurs by physical and chemical manipulations involving one or more reactions. In present laboratory practice, this tends to engage that the process is reproducible, reliable, and recognized to work in many laboratories. A chemical synthesis begins by the medley of various compounds that are known as reactants or reagents. Several reaction types can be applied to these to manufacture the intermediate product or a product. This requires mixing the compounds in a reaction vessel such as a simple round-bottom flask or a chemical reactor. Several reactions need some form of work-up systems before the final product is isolated.

In this paper mainly reveals the synthesis, characterization and biological evaluation of some Schiff' bases from 2-aminop Thaizole and hetero aromatic carbaldehyde by using of Brownstd acid as catalyst. These compounds shown good antibacterial and antifungal activities and these compounds were characterized by the advanced spectral data elemental analysis.

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