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Physicochemical and biological evaluation of some schiff base by conventional and microwave assisted method

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ABSTRACT

A series of Schiff base derivatives has been synthesized by reaction between aromatic aldehydes and various aromatic by conventional and microwave assisted method. The structures of the compounds have been confirmed by IR and 1HNMR spectroscopy. The p^{ka} value and partion coefficient of the compounds have shown that compounds are acidic and lipophillic in nature. From biological investigation it was found that all the compounds have been shown potent antimicrobial, CNS depressant and analgesic activitie compare to standards.

Keywords: Partion-coefficient, Antimicrobial, Analgesic, CNS depressant.

INTRODUCTION

Azomethine group (–C=N–) containing compounds typically known as Schiff bases have been synthesized by the condensation of primary amines with active carbonyls. Several studies have been showen that the presence of a lone pair of electrons and sp2 hybridised orbital of nitrogen atom of the azomethine group is of considerable chemical and biological importance[1]. Schiff bases are an important class of compounds in medicine and pharmaceuticals. They shown biological applications including antibacterial [2-4], antifungal [3-4], antitumor [5,6], anti oxidant [7,8], anti-inflammatory[9], antihypertensive[10], anti-HIV [11], antifilarial [12], anticonvulsant [13], herbicidal, insecticidal, schistosomicidal and antihelmintic activities [14]. Schiff bases are used as protective agents in natural rubber [15].

The development of simple general and efficient synthetic methods for widely used organic compounds from readily available reagents is one of the major challenges in organic synthesis. Microwave-induced Organic Reaction Enhancement (MORE) is used for carrying out chemical transformations in ecofriendly manners [16-18]. The microwave assisted organic reactions occur more safely and in an environmentally friendly manner with shorter reaction time periods, simple reaction conditions enhanced product purity and chemical yields.

MATERIALS AND METHODS

Chemicals purchased from Sigma Aldrich, Merck laboratory, and were used without further purification. All solvents used for spectroscopic and other physical studies were reagent grade and were further purified by literature methods. Melting points were determined using open capillary method. IR spectra were recorded as KBr discs on a Nicolet 380 FT-IR spectrophotometer. 1H NMR spectra were recorded as solutions in CDCl3 on a Bruker AMX 300

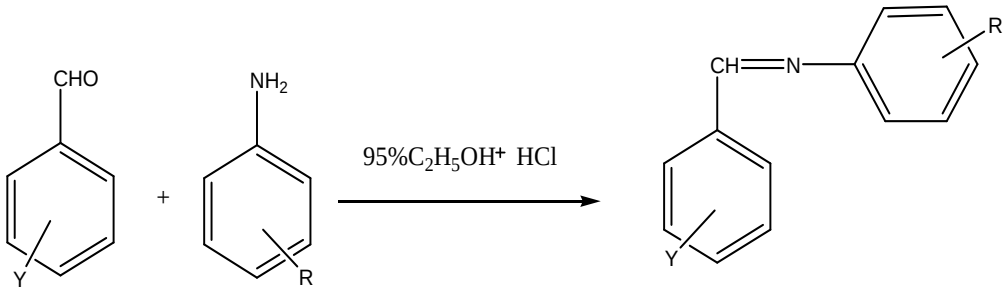
MHz spectrometer, Purity of the compound was monitored by TLC (silica gel 60 F 254 1.05554.0007) and was visualized by UV light of 254 nm.

General procedure for synthesis of Schiff bases by conventional method

Taken around 50 ml dry ethanol add 1mmol equivalent benzaldehyde & anisaldehyde respectively and salisaldehyde, stir the reaction mixture 1 hours then add 1 and 2 drops of conc. HCl. After that added substituent aniline in 1mmol equivalent and reflex for 1hours. Kept the reaction mixture over night, then added crushed ice and filter the precipitate, dry it at room temperature and recrystalized from hot ethanol

General procedure for Microwave assisted synthesis of schiff bases:

The Schiff base was prepared by reaction of equimolar 1mmol equivalent benzaldehyde, anisaldehyde, salisaldehyde and substituted anilines. The reaction mixture were transferred to a clean and dry teflon vessel, and triturated to form uniform mixture, then addition a drops of ethanol. This mixture was subjected to MW irradiation for 0.5-1 min at 400 watt power. After cooling, The formed crystals were filtered off, washed with several time of ethanol and recrystallized from 99 hot ethanol.



Y=H, 4-OCH_3,2-COOH

R= 4-Cl,4-Br,4-NO_2,4-CF_3,4-OCH_3

Scheme-1

ESTIMATION OF pKa BY POTENTIOMETRIC METHOD

0.01 M solution of compound in 10% acetone water solvent system was prepared in 50 ml. and 0.01 N aqueous hydrochloric acid was prepared in 100 ml. The pH meter was calibrated by pH tablet before 30 min of titration. A burette containing solution sodium hydroxide was filtered appropriately for individual respective compounds 47.5 ml sample solution in titrating vessels were taken and pH were recorded. The titrations [19]were performed by addition of 0.5 ml portion of sodium hydroxide solution appropriately for individual respective compounds from burette and pH of each condition of titration was measured. Addition of titration was continued up to 5ml (10 nos. addition).The pKa was calculated by applying Henderson Hasselbach equation for each addition of titrant and then mean value was reported.

DETERMINATION OF PARTITION COEFFICIENT

Take the prepared compound as per proposed scheme and determine the λ_{max} of the compound. Prepared the stock solution for each compound in water and octanol in the concentration of 10 microgram/ ml-50 microgram/ml for all the compounds and make standard plot. Separate the compound by using octanol water system and determine the concentration of drug in water and octanol using extrapolation method and determine the concentration for each compound. Determine Partition Coefficient using formula: P.C. = Concentration of drug in octanol/ Concentration of drug in water.

ANTIMICROBIAL ACTIVITY

The microbial activities of the compounds were studies systematically against strains of *E. coli, Bacillus subtilis and Aspergillus, Penicillium* by disc diffusion method [20]. The zone of inhibition in mm were measured and reported accordingly. Standard drugs Amphotericin-B, Amoxicillin were subjected for the same. The cocenttration of standard and test compounds solution were made in 250µg/ml. In each plate paper discs of compounds, standard drug and another of solvent DMF were placed to observe the effect. The plates were kept undisturbed for at least 2

hours at allow diffusion of solution properly in nutrient media. After incubation of the plate at 28 to 32 ^{o}C for 48 hours the diameter of the zone of inhibition surrounding each of the discs was measured.

ANIMAL EXPERIMENTATION

Healthy three months old male mice weighing around 25-30g were bread and maintained in Central Animal House Facility, IIMT colleges of medical sciences, Meerut were used for study. The experimental protocol were submitted to Institutional animal ethical committee and continued after approval. Swiss albino mice used for acute toxicity studies were also locally bread .The animals were maintained on standard rodent diet and water ad labium. The animals were maintained on 12hrs/12hrs dark cycle at temperature of 25+2°C, Humidity of 45%-55% and ventilation of 10-12 exchanges/hrs.

Procedure for toxicity study

Based on the short term toxicity study, the dose of the animals were determined as per OECD guidelines [21-24]. Prior to studying different pharmacological activity of the compounds, it was essential to determine toxicity of all the compounds. Healthy and adult male albino mice weighing between 20-25 gm were used in present investigation. Animals were fed with sample test compounds suspended in 10% solution of Tween 80 (water as vehicle), was administered intra- peritonially in dose of 5-300 mg/kg. A control group of the animals received only vehicle. Animals were observed for 48 hrs from the time of administration of test compounds to record the mortality. The results of acute toxicity study were found to be supportive in regard to fix the doses further for other pharmacological investigations.

EVALUATION OF CNS ACTIVITY

Procedure for actophotometer

Healthy and adult albino mice were weighed and numbered. Actophotometer [25, 26] calibration was done prior to experimentation. Each mouse was placed separately in the activity cage for 600 seconds and the basal activity score of each mouse was noted. The tested compounds were administered intraperitonially and the activity scores for 600sec were noted after 30 min and 1hr. The differences in activity before and after drug administration were noted. The percent decrease in the motor activity was then calculated.

EVALUATION OF ANALGESIC ACTIVITY

Procedure for tail immersion test

Healthy and adult male albino mice (20-25gm) were used. They were placed into individual restraining cages leaving the tail hanging out freely. The animals were allowed to adapt to the cages for 30 min before testing. The lower 5 cm portion of the tail was immersed in a cup of freshly filled water of exactly 55ºC. Within [27] a few seconds the mice reacted by withdrawing the tail. The reaction times were recorded in 0.5 sec units by a stopwatch. After each determination the tails were dried carefully. The reaction time was determined before and periodically after intra peritoneal administration of the test substance, e.g., after 30 mins and 1hr. The cut off time of the immersion were 15secs. The withdrawal time of untreated animals was between 1-5.5secs. A withdrawal time of more than 6 secs therefore was regarded as positive response.

RESULTS

SPECTRAL DATA

N-benzylidene-4-chlorobenzenamine (1a)

Melting Point: 89-90^{0}C. **IR (KBr,Cm $^{-1}$):** 1681(C=N), 781(C-Cl). **IH NMR ($CDCl_3$, δppm):** 7.5(s, 1H,-N=CH-); 7.4-7.38(d, 2H, J=6 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.3-7.27(d, 2H, J=9Hz, Ar-H); 7.2-7.18(d, 2H, J=6Hz, Ar-H), 7.13(s,1H).

N-benzylidene-4-bromobenzenamine (1b):

Melting Point: 81-94^{0}C. **IR(KBr,Cm $^{-1}$):** 1671(C=N), 598 (C-Br) **IH NMR ($CDCl_3$, δppm):** 7.52(s, 1H,-N=CH-); 7.39-7.38(d, 2H, J=3 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.29-7.27(d, 2H, J=6Hz, Ar-H); 7.2-7.18 (d, 2H, J=6Hz, Ar-H), 7.13(s,1H).

N-benzylidene-4-Nitrobenzenamine (1c):

Melting Point: 85-87^{0}C. **IR(KBr, Cm $^{-1}$):** 1679(C=N), 1508 (C-NO_2 **IR(KBr,Cm^{-1}):** 1671(C=N), 598 (C-Br **IH NMR ($CDCl_3$, δppm):** 7.52(s, 1H,-N=CH-); 7.39-7.38(d, 2H, J=3 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.29-7.27(d, 2H, J=6Hz, Ar-H); 7.2-7.18 (d, 2H, J=6Hz, Ar-H), 7.13(s,1H).

N-benzylidene-4-Trifluoromethylbenzenamine (1d):
Melting Point: 79-81^{0}C. **IR(KBr, Cm $^{-1}$):** 1679.32(C=N), 1200 (C-F) **IH NMR ($CDCl_3$, δppm):** 7.52(s, 1H,-N=CH-); 7.39-7.38(d, 2H, J=3 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.29-7.27(d, 2H, J=6Hz, Ar-H); 7.2-7.18 (d, 2H, J=6Hz, Ar-H), 7.13(s,1H).

Table I: Synthesis of Schiff bases under conventional and microwave heating

Entry	Y	R	Conventional Heating		Microwave Heating		
			Time in Hours	% Yields	Microwave power in Watt	Time in min.	% Yields
1a	H	4-Cl	1.5	70	350	5 min	95
1b	H	4-Br	1.5	70	350	5 min	97
1c	H	4-NO2	1.5	71	350	5 min	91
1d	H	4-CF3	1.5	72	350	5 min	93
1e	H	4-OCH3	1.5	76	350	5 min	95
1f	4-OCH3	4-Cl	1.5	67	350	5 min	92
1g	4-OCH3	4-Br	1.5	72	350	5 min	97
1h	4-OCH3	4-NO2	1.5	71	350	5 min	98
1i	4-OCH3	4-CF3	1.5	72	350	5 min	91
1j	4-OCH3	4-OCH3	1.5	69	350	5 min	90
1k	2-COOH	4-Cl	1.5	62	350	5 min	92
1l	2-COOH	4-Br	1.5	75	350	5 min	93
1m	2-COOH	4-NO2	1.5	76	350	5 min	95
1n	2-COOH	4-CF3	1.5	77	350	5 min	94
1o	2-COOH	4-OCH3	1.5	78	350	5 min	95

N-benzylidene-4-methoxybenzenamine (1e):
Melting Point: 89-90^{0}C. **IR(KBr, Cm $^{-1}$):** 1669.12(C=N), 2960.16 (.O-CH_3), 2818.10 (-CH_3).**IH NMR ($CDCl_3$, δppm):** 7.52(s, 1H,-N=CH-); 7.39-7.38(d, 2H, J=3 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.29-7.27(d, 2H, J=6Hz, Ar-H); 7.2-7.18 (d, 2H, J=6Hz, Ar-H), 7.13(s,1H).

N-(4-methoxybenzylidene)-4-chlorobenzenamine (1f):
Melting Point: 89-90^{0}C. **IR (KBr, Cm $^{-1}$):** 1671(C=N), 781(C-Cl). 2960.16 (.O-CH_3), 2818.11 (-CH_3). **IH NMR ($CDCl_3$, δppm):** 7.45 (s, 1H,-N=CH-); 7.4-7.38(d, 2H, J=6 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.31-7.27(d, 12H, J=9Hz, Ar-H); 7.2-7.18(d, 2H, J=6Hz, Ar-H), 3.13(s,3H).

N-(4-methoxybenzylidene)-4-bromobenzenamine (1g):
Melting Point: 99-91^{0}C. **IR (KBr, Cm $^{-1}$):** 1681(C=N), 598 (C-Br) **,** 2960.16 (.O-CH_3), 2818.10 (-CH_3). **IH NMR ($CDCl_3$, δppm):** 7.45 (s, 1H,-N=CH-); 7.4-7.38(d, 2H, J=6 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.33-7.30(d, 12H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H), 3.23(s,3H).

N-(4-methoxybenzylidene)-4-nitrobenzenamine (1h):
Melting Point: 97-95^{0}C. **IR (KBr, Cm $^{-1}$):** 1673(C=N), 1508 (C-NO_2) **,** 2960.16 (.O-CH_3), 2818.13 (-CH_3). **IH NMR ($CDCl_3$, δppm):** 7.45 (s, 1H,-N=CH-); 7.4-7.38(d, 2H, J=6 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.33-7.30(d, 12H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H), 3.03(s,3H).

N-(4-methoxybenzylidene)-4-trifluoromethylbenzenamine (1i):
Melting Point: 98-96^{0}C. **IR (KBr, Cm $^{-1}$):** 1641(C=N), 1200 (C-F) **,** 2961.16 (.O-CH_3), 2810.10 (-CH_3). **IH NMR ($CDCl_3$, δppm):** 7.55 (s, 1H,-N=CH-); 7.4-7.38(d, 2H, J=6 Hz, Ar-H); 7.3-7.29(d, 2H, J=3 Hz, Ar-H); 7.33-7.30(d, 12H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H), 3.15(s,3H).

N-(4-methoxybenzylidene)-4-methoxybenzenamine (1j):
Melting Point: 93-90^{0}C. **IR (KBr, Cm $^{-1}$):** 1661(C=N), 2961.16 (.O-CH_3), 2810.10 (-CH_3). **IH NMR ($CDCl_3$, δppm):** 7.47 (s, 1H,-N=CH-); 7.41-7.38(d, 2H, J=9 Hz, Ar-H); 7.32-7.29(d, 2H, J=9 Hz, Ar-H); 7.33-7.30(d, 12H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H), 3.15(s,3H).

2-((4-chlorophenylimino) methyl) benzoic acid (1k):
Melting Point: 109-107^{0}C. **IR (KBr, Cm $^{-1}$):** 1681(C=N),2980 (-OH), 1701(-C=O). 781(C-Cl). **IH NMR ($CDCl_3$, δppm):** 11(1H,-COOH) 8.47 (s, 1H,-N=CH-); 8.16-8.14(d, 2H, J=6 Hz, Ar-H); 7.82-7.80(d, 2H, J=6 Hz, Ar-H); 7.33-7.30(d, 2H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H),

2-((4-bromophenylimino) methyl) benzoic acid (1l):
Melting Point: 129-123^{0}C. **IR (KBr, Cm $^{-1}$):** 1682 (C=N),2978 (-OH), 1631(-C=O). 598 (C-Br). **IH NMR ($CDCl_3$, δppm):** 11.2(1H,-COOH) 8.45 (s, 1H,-N=CH-); 8.14-8.12(d, 2H, J=6 Hz, Ar-H); 7.82-7.80(d, 2H, J=6 Hz, Ar-H); 7.33-7.30(d, 2H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H),

2-((4-nitrophenylimino) methyl) benzoic acid (1m):
Melting Point: 127-126^{0}C. **IR (KBr, Cm^{-1}):** 1677.1(C=N),2967 (-OH), 1641(-C=O).1508 (C-NO_2). **IH NMR ($CDCl_3$, δppm):** 12.2 (1H,-COOH) 8.45 (s, 1H,-N=CH-); 8.14-8.12(d, 2H, J=6 Hz, Ar-H); 7.82-7.80(d, 2H, J=6 Hz, Ar-H); 7.33-7.30(d, 2H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H),

2-(4-trifluoromethylphenylimino) methyl) benzoic acid (1n):
Melting Point: 124-122^{0}C. **IR (KBr, Cm $^{-1}$):** 1681.3(C=N),2967 (-OH), 1641(-C=O). 1200(C-F)**. IH NMR ($CDCl_3$, δppm):** 12.2 (1H,-COOH) 8.45 (s, 1H,-N=CH-); 8.14-8.12(d, 2H, J=6 Hz, Ar-H); 7.82-7.80(d, 2H, J=6 Hz, Ar-H); 7.33-7.30(d, 2H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H),

2-(4-methoxy phenyl imino) methyl) benzoic acid (1o):
Melting Point: 128-127^{0}C. **IR (KBr, Cm $^{-1}$):** 1671(C=N),2967 (-OH), 1641(-C=O2961.16 (.O-CH_3), 2810.10 (-CH_3). **IH NMR ($CDCl_3$, δppm):** 10.2 (1H,-COOH) 8.43 (s, 1H,-N=CH-); 8.14-8.12(d, 2H, J=6 Hz, Ar-H); 7.82-7.80(d, 2H, J=6 Hz, Ar-H); 7.33-7.30(d, 2H, J=9Hz, Ar-H); 7.21-7.19(d, 2H, J=6Hz, Ar-H),

Table-2: Physicochemical data

Entry	Y	R	Pka value	λmax	Amax of 10µg\ml	P. Coefficient (P)
1a	H	4-Cl	5.3427	471	0.026	0.87
1b	H	4-Br	5.6348	478.50	0.028	0.81
1c	H	4-NO2	5.2429	501.50	0.020	0.83
1d	H	4-CF3	5.2174	401.82	0.025	0.82
1e	H	4-OCH3	5.4518	431.50	0.016	0.73
1f	4-OCH3	4-Cl	4.1134	481.50	0.035	0.77
1g	4-OCH3	4-Br	4.3696	492	0.021	0.62
1h	4-OCH3	4-NO2	4.2536	511.42	0.027	0.67
1i	4-OCH3	4-CF3	4.3427	456	0.36	0.87
1j	4-OCH3	4-OCH3	4.6348	451.32	0.026	0.82
1k	2-COOH	4-Cl	3.2429	483.02	0.029	0.73
1l	2-COOH	4-Br	3.2174	482.05	0.035	0.82
1m	2-COOH	4-NO2	3.4518	532.02	0.042	0.83
1n	2-COOH	4-CF3	3.1134	459.82	0.059	0.77
1o	2-COOH	4-OCH3	3.3696	469.02	0.036	0.42

Table-3: Antimicrobial Data (Zone Of Inhibition in mm)

Entry	Conc. (µg/ml)	*E. coli*	*B. Substalis*	*A. Niger*	*P. Notatum*
Control	2 ml	0	0	0	0
Amoxicilin	250	18	15	17	16
Amphotercin-B	250	20	20	24	23
Test 1a	250	25	21	20	19
Test 1b	250	18	19	19	19
Test 1c	250	25	22	32	26
Test 1d	250	32	30	35	33
Test 1e	250	19	21	22	22
Test 1f	250	23	25	33	28
Test 1g	250	26	32	36	35
Test 1h	250	16	18	21	23
Test 1i	250	21	22	29	31
Test 1j	250	25	29	33	37
Test 1k	250	22	17	19	29
Test 1l	250	20	22	24	34
Test 1m	250	23	29	31	39
Test 1n	250	18	19	19	21
Test 1o	250	24	25	23	26

Table 4: For CNS Depressant Activity (Actophotometer)

Treatment (i.p.)	Drug (mg/kg)	Mean reaction without drug (sec)	Reaction Response	
			30 min	1 hr
Control	0.2ml	839.66 ± 6.489	837.66±2.825*	841.66 ± 8.16*
Standard	3	665.00 ± 6.45*	515.00 ± 6.38*	166.00 ± 2.08*
Test 1a	10	975.00 ± 4.19	862.33 ± 1.59*	53.33 ± 1.08
Test 1b	10	491.33 ± 8.20*	369.16 ± 4.51*	55.13 ±1.92*
Test 1c	10	392.33 ± 8.34*	216.33 ±1.59*	35.00 ± 1.00*
Test 1d	10	375.00 ± 4.19	262.33 ± 1.59*	43.33 ± 1.08
Test 1e	10	291.33 ± 8.29*	169.16 ±1.51*	45.33 ± 1.92*
Test 1f	10	382.33 ± 8.34*	116.33 ± 1.59*	35.00 ± 1.00*
Test 1g	10	275.00 ± 4.11	162.33 ± 4.59*	53.33 ± 1.085
Test 1h	10	291.33 ± 3.29*	159.16 ± 1.51*	45.33 ± 1.26*
Test 1i	10	390.33 ± 1.34*	116.33 ± 1.54*	46.00 ± 1.00*
Test 1j	10	275.00 ± 1.19	162.33 ± 1.21*	53.33 ± 1.08
Test 1k	10	291.33 ±3.21*	159.16 ± 1.51*	45.33 ± 1.16*
Test 1l	10	272.33 ± 1.32*	116.33 ± 1.25*	25.00 ± 1.00*
Test 1m	10	235.00 ± 1.19	152.33 ± 1.11*	43.33 ± 1.11
Test 1n	10	251.33 ± 1.29*	119.16 ± 1.15*	25.33 ± 1.26*
Test 1o	10	242.33 ± 1.34*	116.33 ±1.43*	35.00 ± 1.00*

*Counts taken after every 600 sec, Values are mean ±SEM; n=6 in each group ,*represents the values less than P<0.05 were considered to be significant*

Table 5: For Analgesic Activity (Tail Flick By Hot Immersion Method)

Treatment (i.p.)	Drug (mg/kg)	Mean response without drug (sec)	Mean Reaction Response	
			After 30 min	After 1 hr
Control	0.2ml	2.65 ±0.07*	2.9543±0.38*	2.9543 ± 0.38*
Standard	5	2.076 ± 0.21*	3.2433 ± 0.43*	3.44 ± 0.4185*
Test 1a	10	1.12 ± 0.2043*	2.55±1.358*	2.76 ± 0.3324*
Test 1b	10	1.28 ± 0.5492*	3.49±0.4142*	3.65 ± 0.3829*
Test 1c	10	1.56 ± 0.1202*	2.93 ± 0.2544*	2.96 ± 0.2540*
Test 1d	10	1.25 ± 0.2043*	2.66 ± 1.358*	2.76±0.3324*
Test 1e	10	2.28 ± 0.5492*	3.59±0.4142*	3.65±0.3829*
Test 1f	10	2.56 ± 0.1202*	3.58±0.2544*	2.93±0.2540*
Test 1g	10	1.10 ± 0.2043*	2.66±1.358*	2.55 ±0.3324*
Test 1h	10	2.22 ± 0.5492*	3.49±0.4142*	3.65 ±0.3829*
Test 1i	10	2.56 ±0.1202*	2.93±0.2544*	2.90 ±0.2540*
Test 1j	10	1.51 ± 0.2043*	2.55±1.358*	2.71 ±0.3324*
Test 1k	10	2.28 ± 0.5492*	3.49±0.4142*	3.65 ±0.3829*
Test 1l	10	2.56 ± 0.1202*	2.93±0.2544*	2.96 ±0.2540*
Test 1m	10	1.10 ± 0.2043*	2.5±1.358*	2.76 ±0.3324*
Test 1n	10	1.28 ± 0.5492*	2.49±0.4142*	3.65 ±0.3829*
Test 1o	10	1.12 ± 0.2043*	2.51±1.358*	2.76 ±0.3324*

*After immersion in water at 55ºC, Values are mean ±SEM; n=6 in each group,*represents the values less than P<0.05 were considered to be significant.*

DISCUSSION

Our present work involves synthesis of some schiff bases and characterization of the synthesized compounds followed by their biological evaluation. These compounds were synthesized by conventional and microwave assisted methods usuing aromatic aldehydes and substituted anilines in the presence of dry ethanol as a solvent. The physicochemical data like pka value and partion coefficients were determined. Structural elucidation of the compounds was done by IR,^{1}H NMR The antimicrobial activity were determined against different strains of bacterias and fungi. The pharmacological screening against analgesic and CNS activity were determined for all the compounds but prior to pharmacological evaluation, toxicity study was determined & dose was fixed as 10mg/kg body weight. From the synthetic procedure it was found that microwave assisted method were more acceptabe on the basis of reaction time and percentage yield. IR (KBr) spectra of the compounds showed streching for C=N at 1590-1685 Cm^{-1}. The presence of different functional groups also confirmed by characteristic peaks . From the ^{1}HNMR spectra it was found that in all the compounds the were aromatic in nature due to the formation of peak on δ value 6-8. The formation of CH=N was further confirmed due to the singlet peak at δ value 7-8 ppm .From physico chemical investigation it were found that the synthesized compounds are acidic and hydrphillic in nature .

The antimicrobial data shown more effficacy compare to standard. After toxicity study dose was fixed as 10mg/kg body weight for all compounds. All the compound shown significant analgesic activity and CNS depressant activity

CONCLUSION

Based on the reaction time and percentage yields it can be proposed that microwave assisted method is more acceptable compare to conventional synthetic procedure . From the spectral data it was found that all the compounds were prepared as per proposed scheme. The synthesized compounds are acidic and hydrophilic in nature. All the compounds shown significant antimicrobial, analgesic CNS depressant activity compare tio standard

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