Synthesis, characterization and antimicrobial screening of novel substituted 5-oxo-imidazoline

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(Received: April 12, 2010; Accepted: May 17, 2010)

ABSTRACT

4-N,N-dimethyl amino benzaldehyde condensed with hydrazine hydrate in methanol medium furnished N-amino-4-N,N-dimethyl amino phenyl azomethine (1a). Different aromatic aldehyde on treatment with benzoyl glycine in acetic unhydride and sodium acetate medium results 4-substituted benzylidin-2-phenyl-5-oxazolinones (2a-g).

4-substituted benzylidin-2-phenyl-5-oxazolinones (2a-g) on refluxing with N-amino-4-N,Ndimethyl amino phenyl azomethine (1a) in pyridine medium yields 1-(4'-N,N-dimethyl amino benzylidine amino)-2-phenyl-4-(substituted benzylidin)-5-oxo-imidazoline (3a-g).

The newly synthesised compounds were characterized on the basis of elemental analysis and 1H NMR, IR spectral data. The synthesized compounds have been screened for their antimicrobial activity against gram +ve and gram -ve bacteria. Some of the products exhibited comparable activity with non standard drugs at same concentration.

Key words: Oxazoline, Oxo Imidazoline, azomethine, antimicrobial activity.

INTRODUCTION

The imidazolinones are reported to exhibit a wide variety of therapeutic activities such as anticonvulsant¹, sedative and hypnotics², potent CNS depressant³, antihistamine⁴, local anaesthetic⁵, fungicidal⁶, anti inflammatory⁷, mono amino oxidase(MAO) inhibitory⁸, anti allergic⁹, potent antiparkinsonian activity¹⁰, hypotensive¹¹, bactericidial¹², insecticidal¹³, anthelmintic¹⁴ antipyretic and analgesic¹⁵.

Analysis of imidazoline derivative, its mode of action, their biodegradation and various application have been studided16. Synthesis and antimicrobial study of 5-imidazolinone having azo moiety is recently studied¹⁷.

Recently pharmaceutical study and

particularly leishmanicidal activity of 5-imidazolinone has been carried out18-20. Now a days an efficient method for the synthesis of long chain dialkyl diamino imidazolines by the reaction of diethylene triamine and several fatty acids under non solvent microwave irradiation using calcium oxide as support is used21.

In the present communication we are reporting the synthesis of 1-(4'-N,N-dimethyl amino benzylidene amino)-2-phenyl-4-substituted benzyliden-5-oxo-imidazoline and there antimicrobial activity by Cup Plate Method22.

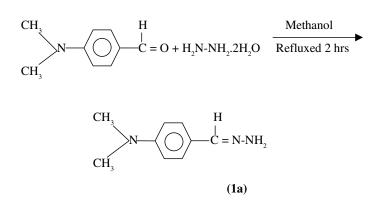
EXPERIMENTAL

The preparation is divided in three steps.

Step 1 - Preparation of of N-amino-4-N,N-

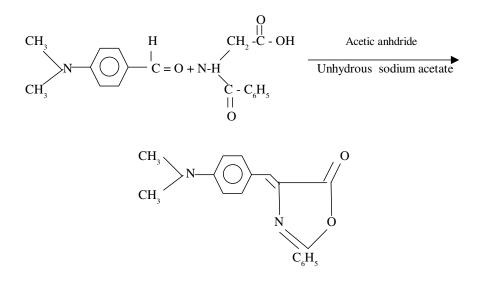
dimethyl amino phenyl azomethine

A mixture of 4-N,N-dimethyl amino benzaldehyde (1.49 gm), (0.01 M) in methanol (25 ml) and hydrazine hydrate (0.3 ml, 0.01 ml) was refluxed for 2 hrs. The content were poured into crushed ice and excess of hydrazine hydrate was neutralized with HCI. The product was crystallized from dioxane.



Step 2 - Preparation of 4-(4'-N,N-dimethyl amino benzylidene)-2-phenyl-5-oxazolinone23

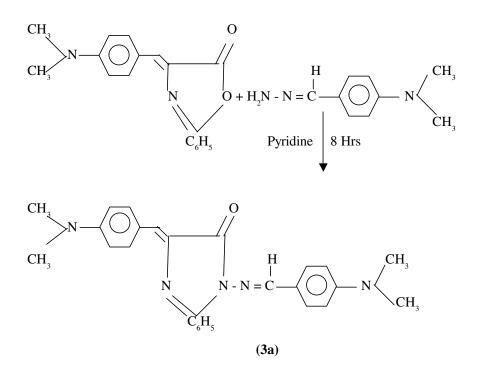
Mixture of (a) 4-N,N-dimethyl amino benzaldehyde (1.49 gm, 0.01 m) and benzoyl glycine (1.8 gm 0.01 M), acetic anhydride (2.86 ml) and anhydrous sodium acetate (0.82 gm, 0.01 m) in 50 ml conical flask. The mixture is heated with constant stirring. As soon as the mixture has liquidified completely, transfer the flask to a water bath and heat for two hours. Then add 10 ml of ethanol slowly and allow the mixture to stand for over night. Filtered and recrystallised the product from benzene.



Step 3 - Preparation of 1-(4'-N,N-dimethyl amino benzylidene amino)-2-phenyl 4-(4"-N,N-dimethyl amino benzyliden)-5-oxo-imidazoline

To a mixture of N-amino-4-N,N-dimethyl amino phenyl azomethine (1.63 gm, 0.01 m) and 4-(4'-N,N-dimethyl amino benzylidine)-2-phenyl-5oxazolione (2.92 gm, 0.01 m), 10 ml of dry pyridine was added. This content was refluxed for 8 hrs. The excess of pyridine was removed under reduced pressure and resulting mass was poured into curshed ice and HCI (3 : 1). The solid product was filtered, washed with cold water and recrystalized with DMF.

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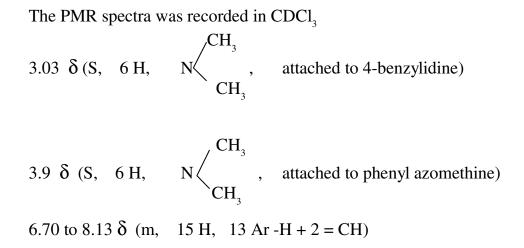
Properties

It is solid, signal red coloured crystalline compound having m.pt. 165°C.

From analytical data the molecular formula is C27H27N5O and its molecular weight is 437.

The IR spectrum was recorded in Nujol IR

 $\begin{array}{cccc} C - H \mbox{ str in CH3} & 2911 \mbox{ cm-1} \\ Aromatic & C - H \mbox{ str 3030 \mbox{ cm-1}} \\ & C = C \mbox{ str } & 1604 \mbox{ cm-1} \\ Imidazoline & C = O \mbox{ str } & 1763 \mbox{ cm-1} \\ Nucleus \mbox{ C = N \mbox{ str } } & 1647 \mbox{ cm-1} \\ & C - N \mbox{ str 1162 \mbox{ cm-1}} \end{array}$

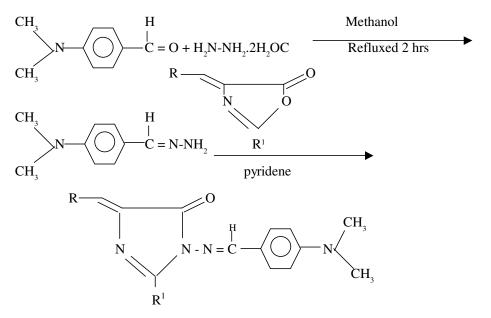


Formula Formula Vield ° 1 3a $4.N.N-dimethy$ e_0H_5 $C_{27}H_2N_5O$ 437 79 165 8i 2 amino phenyl e_0H_5 $C_{27}H_2N_5O_2$ 437 79 165 8i 3 2 $4.methoxy phenyl e_0H_5 C_{28}H_2N_5O_2 434 76 152 79 76 78 5 38 2 2-furturyl e_0H_5 C_{28}H_2N_5O_2 4100 76 152 76 76 6 38 2 2-furturyl e_0H_5 C_{28}H_2N_4O_5 384 70 152 76 7 38 2 2-fundoxy phenyl e_0H_5 C_{28}H_2N_4O_5 394 70 152 76 8 38 2-thenyl C_{9}H_5 C_{28}H_2N_4O_5 394 70 151 86 10 38 2 C_{10}H_{20}N_4O_5 353 74 151 86 $	Entry	Compound	œ	R1	Molecular	M.W.	%	m.p.	Colour	Elem	Elemental Analysis (%) Found (Calculated)	alysis (%) culated)	
3a 4-N.N-dimethy amino phenyl C_6H_5 $C_{2x}H_{2x}N_5O$ 437 79 165 3b 4-methoxy phenyl C_6H_5 $C_{2x}H_{2x}N_5O_5$ 424 76 149 3e 2-furfuryl C_6H_5 $C_{2x}H_{2x}N_5O_5$ 439 70 152 3f 2-rintrophenyl C_6H_5 $C_{2x}H_{2x}N_4O_2$ 410 80 154 3f 2-rintrophenyl C_6H_5 $C_{2x}H_{2x}N_4O_2$ 439 74 105 3f 2-rintrophenyl C_6H_5 $C_{2x}H_{2x}N_4O_2$ 384 70 154 3f 2-rintrophenyl C_6H_5 $C_{2x}H_{2x}N_4O_2$ 389 74 105 3g 2-rintrophenyl C_6H_5 $C_{2x}H_{2x}N_4O_2$ 359 74 151 3h 4-methoxy phenyl CH_3 $C_{2x}H_{2x}N_4O_2$ 359 74 153 3h 2-rintrophenyl CH_3 $C_{2x}H_{2x}N_4O_2$ 359 74 153 3h Phenyl C					Formula		Yield	ů		U	т	z	s
3b amino phenyl 4-methoxy phenyl $C_{0}H_{3}$ $C_{20}H_{20}N_{4}O_{2}$ 424 76 149 3e 2-furfuryl $C_{0}H_{3}$ $C_{0}H_{3}O_{4}O_{2}$ 384 70 152 3f 2-introphenyl $C_{0}H_{3}$ $C_{0}H_{20}N_{4}O_{2}$ 384 70 155 3d 2-introphenyl $C_{0}H_{3}$ $C_{2}H_{20}N_{4}O_{2}$ 384 70 154 3d 2-introphenyl $C_{0}H_{3}$ $C_{2}H_{20}N_{4}O_{2}$ 384 70 154 3d Phenyl $C_{0}H_{3}$ $C_{2}H_{2}N_{4}O_{2}$ 384 70 154 3d 2-intenyl $C_{0}H_{3}$ $C_{2}H_{2}N_{4}O_{2}$ 375 74 151 3i 4-methoxy phenyl CH_{3} $C_{2}H_{3}N_{4}O_{2}$ 375 74 151 3i 4-methoxy phenyl CH_{3} $C_{2}H_{3}N_{4}O_{2}$ 375 74 153 3f 2-hydroxy phenyl CH_{3} $C_{2}H_{3}N_{4}O_{2}$ 376 746 153 <		3a	4-N,N-dimethy	C _E H	C ₂₇ H ₂₂ N ₅ O	437	79	165	Signal	72.22	6.10	15.08	.
3b 4-methoxy phenyl $G_{\theta}H_5$ $G_{ae}H_{aa}N_4O_2$ 424 76 149 3e 2-furturyl $G_{\theta}H_5$ $G_{e}H_5$ $G_{e}H_5N_4O_2$ 384 70 152 3f 2-nitrophenyl $G_{\theta}H_5$ $G_{e}H_5N_4O_2$ 384 70 154 3f 2-nitrophenyl $G_{\theta}H_5$ $G_{ae}H_2N_4O_2$ 384 73 154 3d Phenyl $G_{\theta}H_5$ $G_{ae}H_2N_4O_5$ 410 80 154 3d Phenyl $G_{\theta}H_5$ $G_{ae}H_2N_4O_5$ 384 70 153 3d 2-thenyl $G_{\theta}H_5$ $G_{ae}H_2N_4O_5$ 375 74 151 3f 4-methoxy phenyl CH_5 $G_{ae}H_5N_4O_5$ 375 74 153 3f 2-thenyl CH_5 $G_{ae}H_5N_4O_5$ 376 74 153 3f 4-methoxy phenyl CH_5 $G_{ae}H_5N_4O_5$ 378 74 153 3f 2-thenyl CH_5 $G_$			amino phenyl	0	2				Red	(74.14)	(6.17)	(16.01)	
$2e$ $2-turturylc_{\theta}H_{5}C_{za}H_{za}N_{4}O_{2}384701523f2-turturylc_{\theta}H_{5}C_{za}H_{za}N_{4}O_{2}384701523f2-turturylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{2}439741053dPhenylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{2}439741053dPhenylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{2}39472133d2-thenylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{5}302741513h4-turkturylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{5}304721323h4-turkturylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{5}304721353h4-turkturylC_{\theta}H_{5}C_{za}H_{za}N_{4}O_{5}304701643h2-turkturylCH_{5}C_{zu}H_{2}N_{4}O_{5}322741513h2-turkturylCH_{5}C_{zu}H_{2}N_{4}O_{5}322761463h2-turkturylCH_{5}C_{zu}H_{2}N_{4}O_{5}322761463h2-turkturylCH_{5}C_{u}H_{0}N_{4}O_{5}324701643h2-turkturylCH_{5}C_{u}H_{0}N_{4}O_{5}322761763h2-turkturylCH_{5}C_{u}H_{0}N_{4}O_{5}324761743h$	N	3b	4-methoxy phenyl	C ₆ H ₅	$C_{26}H_{24}N_4O_2$	424	76	149	Yellow	72.15	5.52	13.00	,
$3e$ $2-turturylC_{\theta}H_{5}C_{2M}M_{0}C_{2}384701523f2-nitrophenylC_{\theta}H_{5}C_{2M}H_{2N}N_{0}C_{2}439741053c2-nitrophenylC_{\theta}H_{5}C_{2M}H_{2N}N_{0}C_{2}439741053dPhenylC_{\theta}H_{5}C_{2M}H_{2N}N_{0}C_{2}439741053d2-thenylC_{\theta}H_{5}C_{2M}H_{2N}N_{0}C_{2}39472133d2-thenylC_{\theta}H_{5}C_{2M}H_{2N}N_{0}C_{2}375741513h4-N,N-timethylCH_{5}C_{2M}H_{2N}N_{0}C_{2}375741513h4-nethoxy phenylCH_{5}C_{2M}H_{2N}N_{0}C_{2}375741513h2-thenylCH_{5}C_{2M}H_{3N}N_{0}C_{2}375761463h2-thenylCH_{5}C_{2M}H_{3N}N_{0}C_{2}322761463h2-thenylCH_{5}C_{2M}H_{3N}N_{0}C_{2}322761463h2-thenylCH_{5}C_{3M}H_{3N}N_{0}C_{2}322761463h2-thenylCH_{5}C_{3M}H_{3N}N_{0}C_{2}322761463h2-thenylCH_{5}C_{3M}H_{3N}N_{0}C_{2}320761463h2-thenylCH_{5}C_{3M}H_{3N}N_{0}C_{2}320761463h2-thenyl<$							2		Orange	74.20	5.44	13.69	ı
$3e$ 2 -furfuryl $C_{e}H_{5}$ $C_{a}H_{a}N_{0}O_{2}$ 384 70 152 $3c$ 2 -nitrophenyl $C_{e}H_{5}$ $C_{a}H_{a}N_{0}O_{2}$ 439 74 105 $3c$ 2 -nitrophenyl $C_{e}H_{5}$ $C_{a}H_{a}N_{0}O_{2}$ 430 74 105 $3d$ Phenyl $C_{e}H_{5}$ $C_{a}H_{a}N_{0}O_{2}$ 430 74 105 $3d$ 2 -thenyl $C_{e}H_{5}$ $C_{a}H_{a}N_{0}O_{5}$ 430 72 13 $3d$ 2 -thenyl $C_{e}H_{5}$ $C_{a}H_{a}N_{0}O_{5}$ 332 74 151 $3d$ 4 -methoxy phenyl CH_{3} $C_{a}H_{a}N_{0}O_{5}$ 348 70 154 $3i$ 4 -methoxy phenyl CH_{3} $C_{a}H_{a}N_{0}O_{5}$ 348 70 164 $3i$ 4 -methoxy phenyl CH_{3} $C_{a}H_{a}N_{0}O_{5}$ 348 70 164 $3i$ 2 -hydroxy phenyl CH_{3} $C_{a}H_{a}N_{0}O_{5}$ 348										(76.14)	(5.58)	(14.21)	
$3f$ 2 -nitrophenyl $C_{\theta}H_{5}$ $C_{B}H_{2}$ $V_{0}O_{2}$ 439 74 105 $3c$ 2 -hydroxy phenyl $C_{\theta}H_{5}$ $C_{B}H_{2}$ $C_{B}H_{2}$ 410 80 154 $3d$ Phenyl $C_{\theta}H_{5}$ $C_{B}H_{2}$ $C_{B}H_{2}$ 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	5	3e	2-furfuryl	C _e H ²	$C_{23}H_{20}N_4O_2$	384	70	152	Faint	69.92	5.04	14.12	
3f2-nitrophenyl C_6H_5 $C_{zH}H_2N_6O_3$ 439741053c2-hydroxy phenyl C_6H_5 $C_{zH}H_2N_6O_3$ 439741053dPhenyl C_6H_5 $C_{zH}H_2N_4O_3$ 801543g2-thenyl C_6H_5 $C_{zH}H_2N_4O_5$ 400761223h4-N,N-dimethyl CH_3 $C_{2}H_{20}N_4O_5$ 375741513h4-Nethoxy phenyl CH_3 $C_{2}H_{20}N_4O_2$ 359741533i2-tydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 359741533i2-tydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 359741533i2-tydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 352761463m2-furfuryl CH_3 $C_{20}H_{20}N_4O_3$ 377801143m2-furfuryl CH_3 $C_{10}H_{10}N_4O_5$ 33870923n2-thenyl CH_3 $C_{10}H_{10}N_4O_5$ 3387092									Orange	(71.87)	(5.20)	(14.58)	
3c 2-hydroxy phenyl $G_{\theta}H_{5}$ $C_{2s}H_{2s}N_{4}O_{2}$ 410 80 154 3d Phenyl $G_{\theta}H_{5}$ $C_{2s}H_{2s}N_{4}O_{5}$ 394 72 13 3g 2-thenyl $G_{\theta}H_{5}$ $C_{2s}H_{2s}N_{4}O_{5}$ 400 76 122 3h $4-N,N-dimethyl$ CH_{5} $C_{2s}H_{2s}N_{5}O_{5}$ 375 74 151 3i $4-methoxy phenyl CH_{3} C_{2r}H_{10}N_{4}O_{2} 359 74 153 3i 2-hydroxy phenyl CH_{3} C_{2r}H_{10}N_{4}O_{2} 359 74 153 3k Phenyl CH_{3} C_{2r}H_{10}N_{4}O_{2} 348 70 164 3m 2-furfuryl CH_{3} C_{2r}H_{10}N_{4}O_{2} 375 76 146 3m 2-furfuryl CH_{3} C_{2r}H_{10}N_{4}O_{2} 376 76 172 3m 2-furfuryl CH_{3} C_{2r}H_{10}N_{4}O_{5} 322 76 146 3m 2-furfuryl CH_{3} C_{2r}H_{10}N_{4}O_{5} 338 70 114 $	9	Зf	2-nitrophenyl	C ₆ H ₅	$C_{25}H_{21}N_5O_3$	439	74	105		(73.58)	(2.66)	(13.20)	
3dPhenyl C_6H_5 $C_{ss}H_{22}N_4O$ 39472133g2-thenyl C_6H_5 $C_{ss}H_{s0}N_4O_5$ 400761223h4-N,N-dimethyl CH_3 $C_{s1}H_{s0}N_4O_5$ 400761223h4-nethoxy phenyl CH_3 $C_{s1}H_{s0}N_4O_5$ 359741513i2-hydroxy phenyl CH_3 $C_{s1}H_{s0}N_4O_2$ 359741533i2-hydroxy phenyl CH_3 $C_{s0}H_{s0}N_4O_2$ 348701643kPhenyl CH_3 $C_{s0}H_{s0}N_4O_2$ 322761463m2-furfuryl CH_3 $C_{s0}H_{s0}N_4O_2$ 322761463m2-furfuryl CH_3 $C_{s0}H_{s0}N_4O_5$ 332761463n2-furfuryl CH_3 $C_{s0}H_{s0}N_4O_5$ 322761463n2-furfuryl CH_3 $C_{s0}H_{s0}N_4O_5$ 3387092	ო	Зс	2-hydroxy phenyl	C _e H _c	$C_{25}H_{22}N_4O_2$	410	80	154	Sunrise	69.78	5.28	13.42	
3d Phenyl C_6H_5 $C_{zs}H_{zo}N_4O_5$ 394 72 13 3g 2-thenyl C_6H_5 $C_{zs}H_{zo}N_4O_5$ 400 76 122 3h 4-N,N-dimethyl Ch_3 $C_{z}H_{zb}N_5O$ 375 74 151 3i 4-methoxy phenyl CH_3 $C_{z1}H_{19}N_4O_2$ 359 74 153 3i 2-hydroxy phenyl CH_3 $C_{z0}H_{z0}N_4O_2$ 359 74 153 3k Phenyl CH_3 $C_{z0}H_{z0}N_4O_2$ 352 76 146 3k Phenyl CH_3 $C_{z0}H_{z0}N_4O_2$ 322 76 172 3m 2-furfuryl CH_3 $C_{z0}H_{z0}N_4O_2$ 322 76 176 3m 2-furfuryl CH_3 $C_{z0}H_{z0}N_4O_5$ 322 76 176 3m 2-furfuryl CH_3 $C_{z0}H_{z0}N_4O_5$ 322 76 176 3m 2-furfuryl CH_3 $C_{z0}H_{z0}N_5O_3$))	-					(73.17)	(2.36)	(13.65)	
3g2-thenyl C_6H_5 $C_{22}H_{20}N_4O_5$ 400761223h $4-N,N-dimethylCH_3C_{2}H_3N_5O375741513i4-methoxy phenylCH_3C_{21}H_9N_4O_2359741533i2-hydroxy phenylCH_3C_{20}H_{20}N_4O_2359741533i2-hydroxy phenylCH_3C_{20}H_{20}N_4O_2359741533kPhenylCH_3C_{20}H_{20}N_4O_2359741533kPhenylCH_3C_{20}H_{20}N_4O_2377801143m2-furfurylCH_3C_{10}H_{10}N_5O_3377801143m2-ifurfurylCH_3C_{10}H_{10}N_5O_3377801143n2-ifurfurylCH_3C_{10}H_{10}N_5O_337780114$	4	3d	Phenyl	C ₆ H ₅	$C_{25}H_{22}N_4O$	394	72	13	Golden	66.20	4.60	15.48	
3g 2-thenyl $C_{\theta}H_{3}$ $C_{23}H_{20}N_{4}O_{5}$ 400 76 122 3h $4^{-}N,N^{-}$ dimethyl CH_{3} $C_{22}H_{35}N_{5}O$ 375 74 151 3i $4^{-}methoxy$ phenyl CH_{3} $C_{21}H_{49}N_{4}O_{2}$ 359 74 153 3j $2^{-}hydroxy$ phenyl CH_{3} $C_{20}H_{20}N_{4}O_{2}$ 348 70 164 3k Phenyl CH_{3} $C_{20}H_{20}N_{4}O_{2}$ 322 76 146 3k Phenyl CH_{3} $C_{20}H_{10}N_{4}O_{2}$ 322 76 146 3m $2^{-furfuryl}$ CH_{3} $C_{16}H_{16}N_{4}O_{2}$ 322 76 172 3m $2^{-furfuryl}$ CH_{3} $C_{16}H_{16}N_{4}O_{5}$ 332 76 172 3m $2^{-furfuryl}$ CH_{3} $C_{16}H_{16}N_{4}O_{5}$ 338 70 164 3m $2^{-furfuryl}$ CH_{3} $C_{16}H_{16}N_{4}O_{5}$ 338 70 92									Yellow	(68.33)	(4.78)	(15.94)	
$3h$ $4-N,N-dimethylCH_3C_{2z}H_{2s}N_sO375741513i4-methoxy phenylCH_3C_{2r}H_{10}N_sO_2359741533j2-hydroxy phenylCH_3C_{2o}H_{2o}N_sO_2348701643kPhenylCH_3C_{2o}H_{2o}N_sO_2348701643kPhenylCH_3C_{2o}H_{2o}N_sO_2348701643kPhenylCH_3C_{2o}H_{2o}N_sO_2378761463m2-furfurylCH_3C_{16}H_{16}N_sO_3377801143m2-nitrophenylCH_3C_{16}H_{16}N_sO_3377801143n2-thenylCH_3C_{16}H_{16}N_sO_337780114$	7	3g	2-thenyl	C _e H ⁵	$C_{23}H_{20}N_4O_5$	400	76	122	Faint	67.78	4.80	12.48	7.56
3h $4-N,N-dimethylCH3C_{22}H_{26}N_5O375741513i4-methoxy phenylCH3C_{21}H_{10}N_4O_2359741533j2-hydroxy phenylCH3C_{20}H_{20}N_4O_2348701643kPhenylCH3C_{20}H_{20}N_4O_2348701643kPhenylCH3C_{20}H_{10}N_4O_2322761463m2-furfurylCH3C_{16}H_{16}N_4O_2322761723m2-furfurylCH3C_{20}H_{10}N_5O_3377801143n2-thenylCH3C_{16}H_{16}N_4O_53387092$									Green	(00.69)	(2.00)	(14.00)	(8.00)
3iamino phenyl 4 -methoxy phenyl CH_3 $C_{21}H_{19}N_4O_2$ 359741533j 2 -hydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 348701643kPhenyl CH_3 $C_{20}H_{20}N_4O_2$ 332761463l 2 -furfuryl CH_3 $C_{16}H_{18}N_4O_2$ 322761723m 2 -nitrophenyl CH_3 $C_{20}H_{10}N_5O_3$ 377801143n 2 -nitrophenyl CH_3 $C_{16}H_{18}N_4O_5$ 33870923n 2 -thenyl CH_3 $C_{16}H_{16}N_4O_5$ 3387092	8	Зh	4-N,N-dimethyl	сH	C ₂₂ H ₂₅ N ₅ O	375	74	151	Brown	68.56	6.36	17.98	
3i4-methoxy phenyl CH_3 $C_{21}H_{19}N_4O_2$ 359741533j2-hydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 348701643kPhenyl CH_3 $C_{20}H_{20}N_4O_2$ 332761463l2-furfuryl CH_3 $C_{16}H_{18}N_4O_2$ 322761723m2-furfuryl CH_3 $C_{20}H_{10}N_5O_3$ 377801143n2-nitrophenyl CH_3 $C_{16}H_{18}N_4O_5$ 3387092			amino phenyl							(70.40)	(0.66)	(18.66)	,
3j2-hydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 348701643kPhenyl CH_3 $C_{20}H_{20}N_4O$ 332761463l2-furfuryl CH_3 CH_3 $C_{16}H_{16}N_4O_2$ 322761723m2-furfuryl CH_3 $C_{20}H_{10}N_5O_3$ 377801143n2-nitrophenyl CH_3 $C_{16}H_{18}N_4O_5$ 3387092	6	Зi	4-methoxy phenyl	сH	$C_{21}H_{19}N_4O_2$	359	74	153	Biscuit	67.98	5.15	15.48	
3j 2-hydroxy phenyl CH_3 $C_{20}H_{20}N_4O_2$ 348 70 164 3k Phenyl CH_3 $C_{20}H_{20}N_4O_2$ 332 76 146 3l 2-furfuryl CH_3 $C_{16}H_{18}N_4O_2$ 322 76 172 3m 2-furfuryl CH_3 $C_{16}H_{18}N_4O_2$ 322 76 172 3m 2-nitrophenyl CH_3 $C_{20}H_{19}N_5O_3$ 377 80 114 3n 2-thenyl CH_3 $C_{16}H_{18}N_4O_5$ 338 70 92										(70.19)	(5.29)	(15.59)	
3kPhenyl CH_3 $C_{20}H_{20}N_4O$ 332761463l2-furfuryl CH_3 $C_{16}H_{18}N_4O_2$ 322761723m2-nitrophenyl CH_3 $C_{20}H_{19}N_5O_3$ 377801143n2-thenyl CH_3 $C_{16}H_{18}N_4O_5$ 3387092	10	3j	2-hydroxy phenyl	сH	$C_{20}H_{20}N_4O_2$	348	70	164	Golden	5.38	5.38	15.64	
3k Phenyl CH_3 $C_{20}H_{20}N_4O$ 332 76 146 3l 2-furfuryl CH_3 $C_{16}H_{16}N_4O_2$ 322 76 172 3m 2-nitrophenyl CH_3 $C_{20}H_{16}N_5O_3$ 377 80 114 3n 2-thenyl CH_3 $C_{16}H_{16}N_5O_3$ 377 80 114									Yellow	(68.96)	(5.74)	(16.09)	
3I 2-furfuryl CH_3 $C_{16}H_{16}N_4O_2$ 322 76 172 3m 2-nitrophenyl CH_3 $C_{20}H_{16}N_5O_3$ 377 80 114 3n 2-thenyl CH_3 $C_{16}H_{18}N_4O_5$ 338 70 92	11	ЗĶ	Phenyl	сH	$C_{20}H_{20}N_4O$	332	76	146	Dark	70.56	5.64	16.58	
3I 2-furfuryl CH ₃ C ₁₆ H ₁₆ N ₄ O ₂ 322 76 172 3m 2-nitrophenyl CH ₃ C ₂₀ H ₁₉ N ₅ O ₃ 377 80 114 3n 2-thenyl CH ₃ C ₁₆ H ₁₈ N ₄ O ₅ 338 70 92									Red	(72.28)	(6.02)	(16.86)	,
3m 2-nitrophenyl CH ₃ C ₂₀ H ₁₉ N ₅ O ₃ 377 80 114 3n 2-thenyl CH ₃ C ₁₈ H ₁₈ N ₄ O ₅ 338 70 92	12	31	2-furfuryl	сн [°]	$C_{1_8}H_{1_8}N_4O_2$	322	76	172	Faint	65.00	5.48	15.88	,
3m 2-nitrophenyl CH ₃ C ₂₀ H ₁₉ N ₅ O ₃ 377 80 114 3n 2-thenyl CH ₃ C ₁₆ H ₁₈ N ₄ O ₅ 338 70 92									Yellow	(67.08)	(5.59)	(17.39)	,
3n 2-thenyl CH ₃ C ₁₆ H ₁₈ N ₄ O ₅ 338 70 92	13	Зm	2-nitrophenyl	сH	$C_{20}H_{19}N_5O_3$	377	80	114	Mikado	62.12	4.80	18.34	
3n 2-thenyl CH ₃ C ₁₈ H ₁₈ N ₄ O ₅ 338 70 92										(63.66)	(5.03)	(18.56)	
	14	3n	2-thenyl	сH	$C_{1_8}H_{1_8}N_4O_5$	338	70	92	Mustard	62.12	5.18	16.40	9.12
										(63.90)	(5.32)	(16.56)	(9.46)

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Where R & R¹ are listed in table No. 1

From this spectral data interpretation, the compound is 1-(4'-N,N- dimethyl amino benzylidine amino)-2-phenyl-4-(4"-N,N-dimethyl amino benzyliden)-5-oxo-imidazoline.

Similarly other 2-phenyl derivatives of 5oxo-imidazoline were prepared from N-amino-4-N,N-dimethyl amino phenyl azomethine and 4substituted benzylidine-2-phenyl 5-oxo oxazolines

Compound	Gram +ve		Gram -ve	
	Bacillus magatherium	Bacillus subtilis	Proteus vulgaris	Escherichia coli
За	+++	-	++	++
3b	+	+	-	++
Зc	-	-	-	++
3d	+++	++	++	+++
Зе	+	-	++	++
3f	++	++	+++	+++
3g	-	++	++	+++
3h	++	-	-	+
3i	++	+++	+	++
Зј	++	+	+	++
3k	+++	++	+	+++
31	++	+++	+	++
3m	+++	+	+++	+++
3n	++	+	++	++

 Table 2 : Antimicrobial Activity of substituted

 5-Oxo imidazolines (3a - n) by Cup-plate Method

and 2-methyl derivatives of 5-oxo-imidazoline were prepared from N-amino-4-N,N-dimethyl amino phenyl azomethine and 4-substituted benzylidine-2-methyl 5-oxo oxazolines and are stated in tabel 1.

Antimicrobial Activity

The newly synthesized compounds were screened for their anti microbial activities, which were determined by using Cup Plate Method by measuring zone of inhibition in mm. All compound were screened for their antimicrobial activity against gram positive (*Bacillus magatherium, Bacillus subtilis*) and gram negative (*Escherichia Coli, Protills*) *vulgaris*) bacteria at a concentration of 100 mg/ml. The activity was compared with known antibodies viz. chloramphenacol at same concentration. The zone of inhibition were recorded after incubation for 24 hours using vernier calliber. Inhibition zone record of the compounds cleraly indicates that 3a, 3d, 3k and 3m were highly active against *Bacillus magatherium*, 3d, 3f, 3g, 3k and 3m were highly active against *Escherichia coli*, where as moderately active against *Bacillus subtilis* and *Proteus vulgaris*. The result of sensitivity of various pathogenic bacteria to the various newly synthesised compounds are shown in table 2.

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