

Supporting Information

Emerging Trends and Structure-Activity Insights of Schiff Base-Lanthanide Complexes as Antibacterial Agents

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Table 1S Reported Schiff bases and their Ln(III) complexes along with different microbes used for antibacterial activity.

Sr. No.	Ln(III) ions	Schiff bases	Gram positive bacteria	Gram negative bacteria	Ref.
			G (+)	G(-)	
1.	Eu(III), Tb(III), Gd(III)	2,2'-(thiophene-2,5-diylbis(methaneylylidene))bis(azaneylylidene)diphenol (H₂L₁)	SA-ATCC25923, EF-ATCC29212	EC-ATCC25922, KP-ATCC700603, PA-ATCC27853	57-59
2.	Pr(III), Nd(III), Sm(III)	2-(5-bromo-2-hydroxybenzylideneamino)pyridin-3-ol (H₂L₂)	-	EC	54
3.	Pr(III), Nd(III)	(HL₃)	SA, MRSA, EF	EC, PA, SE	55
4.	La(III), Ce(III), Nd(III)(III), Dy(III)	4-(benzo[d]thiazol-2-ylamino)-3-((benzo[d]thiazol-2-ylimino)methyl)-2H-chromen-2-one (L₄)	SA-ATCC13565, BS-DSM1088	EC-ATCC10536, KP-ATCC10031	65
5.	Dy(III)	(2E,N'E)-N'-(5-bromo-2-hydroxybenzylidene)-2-(hydroxyimino)propanehydrazide (H₂L₅)	SA, SAI, BS, ML	EC	66
6.	La(III), Pr(III), Nd(III), Sm(III), Eu(III), Gd(III), Tb(III), Dy(III), Er(III)	(E)-N'-(3,5-di-tert-butyl-2-hydroxybenzylidene)picolinohydrazide (H₂L₆)	SA, MRSA, EF	KP, EC, SE	70, 71

7.	La(III), Nd(III), Er(III), Gd(III), Dy(III)	(E)-4-((2,3-dihydrobenzo[d]thiazol-2-ylimino)methyl)-1,5-dimethyl-2-phenyl-1H-pyrazol-3(2H)-one (L₇)	<i>SA, BS</i>	<i>EC, KP</i>	72
8.	Nd(III), Tb(III) Dy(III)	(E)-2-((p-tolylimino)methyl)phenol (HL₈)	<i>SA-ATCC29213, SA-ATCC33591</i>	<i>EC-ATCC25922, PA-ATCC 27853</i>	74
9.	Yb(III), Pr(III), Er(III)	(N2, N3-bis) anthracen-9-ylmethylene pyridine-2, 6-diamine (L₉)	<i>SA</i>	<i>PA</i>	75
10.	Nd(III), Sm(III), Tb(III)	(E)-6-(hydroxymethyl)-N'-((6-methoxypyridin-2-yl)methylene)picolinohydrazide (H₂L₁₀)	-	<i>PSy</i>	78
11.	La(III), Er(III), Yb(III)	N1-(diphenylmethylene)naphthalene-1,8-diamine (L₁₁)	<i>BS</i>	<i>EC</i>	83
12.	Nd(III), Sm(III), Gd(III)	(E)-6-ethoxy-N-((E)-3-(furan-2-yl)allylidene)benzo[d]thiazol-2-amine (L₁₂)	<i>SA-ATCC25923, BS-RCMB015</i>	<i>EC-ATCC25922, PV-RCMB004</i>	85
13.	La(III), Pr(III), Nd(III), Sm(III), Eu(III), Gd(III), Tb(III), 0Dy(III), Er(III))	(E)-N'-(5-chloro-2-hydroxybenzylidene)-2-fluorobenzohydrazide (H₂L₁₃) (E)-N'-(5-bromo-2-hydroxybenzylidene)-2-fluorobenzohydrazide (H₂L₁₄)	<i>EF, SA, MRSA</i>	<i>EC, KP, SE</i>	90
14.	Ce(III), Nd(III), Pr(III)	(N,N'E,N,N'E)-N,N'-(1,3-phenylenebis(methan-1-yl-1-ylidene))bis(5-nitrobenzo [d] thiazol-2-amine) (L₁₅), (E)-5-methyl-N-(3-((E)-(4-methylthiazol-2-ylimino)methyl)benzylidene)thiazol-2-amine (L₁₆)	<i>SA, PBA</i>	-	92
15.	Yb(III), Er(III), La(III)	(2-(1-((8-aminonaphthalen-1-yl)imino)ethyl)cyclopenta-2,4-dien-1-yl)(cyclopenta-2,4-dien-1-yl)iron (L₁₇), (2-(1-((1-carboxyethyl)imino)ethyl)cyclopenta-2,4-dien-1-yl)(cyclopenta-2,4-dien-1-yl)iron (HL₁₈)	<i>SA, BC, BS</i>	<i>EC, PA, NG, ST SF</i>	96-98
16.	Nd(III), La(III), Er(III), Gd(III), Dy(III)	((3a <i>E</i> ,7 <i>E</i>)-1,2,9,10-tetramethyl-3,8-diphenyl-3,5,6,8,9,11-hexahydro-2 <i>H</i>	<i>SA, BS</i>	<i>EC, KP</i>	100

		dipyrazolo[3,4-e:4',3'-h][1,4] diazonine) (L ₁₉)			
17.	La(III), Yb(III), Er(III)	N ¹ -(diphenylmethylene) naphthalene- 1,8-diamine (L ₁₁)	<i>BS</i>	<i>EC</i>	104
18.	La(III), Pr(III), Nd(III), Sm(III), Eu(III), Gd(III), Tb(III), Dy(III)	2,2'-(1E,1'E)-(1,2-phenylenebis(azan- 1-yl-1-ylidene))bis(methan-1-yl-1- ylidene)bis(4-nitrophenol) (H ₂ L ₂₀)	<i>SA, MRSA, EF</i>	<i>SE, KP, EC</i>	107
19.	Er(III)	2,2'-(1E,1'E)-(ethane-1,2- diylbis(azan-1-yl-1- ylidene))bis(methan-1-yl-1- ylidene)diphenol (L ₂₁)	<i>SA</i>	<i>EC</i>	110
20.	La(III), Ce(III)	2-(((3-(1H-benzo[d]imidazol-2- yl)phenyl)imino)methyl)phenol (HL ₂₂) 4-(((3-(1H-benzo[d]imidazol-2- yl)phenyl)imino)methyl)benzene-1,3- diol (HL ₂₃) 2-(((4-(1H-benzo[d]imidazol-2- yl)phenyl)imino)methyl)phenol (HL ₂₄) 4-(((4-(1H-benzo[d]imidazol-2- yl)phenyl)imino)methyl)benzene-1,3- diol (HL ₂₅)	<i>SA-ATCC25923, LM-ATCC19115</i>	<i>EC-ATCC25922, PA-ATCC 27583</i>	111
21.	Gd(III), Pr(III)	2,2'-(1Z,1'Z)-(1,3-diphenylpropane- 1,3-diylidene)bis(azan-1-yl-1- ylidene)dibenzoic acid (H ₂ L ₂₆)	<i>SA, BS</i>	<i>ST, EC</i>	115
22.	La(III), Sm(III), Eu(III), Gd(III), Tb(III), Dy(III)	(E)-N ¹ -(2-hydroxybenzylidene) picolinohydrazide (H ₂ L ₂₇)	<i>SA, MRSA, EF</i>	<i>SE, KP, EC</i>	116
23.	Yb(III), Nd(III), Dy(III)	6,6'-(1E,1'E)-(2,2'- azanedylbis(ethane-2,1- diyl)bis(azan-1-yl-1- ylidene))bis(methan-1-yl-1- ylidene)bis(2-methoxyphenol) (H ₂ L ₂₈) 1,1'-(1E,1'E)-(2,2'- azanedylbis(ethane-2,1- diyl)bis(azan-1-yl-1- ylidene))bis(methan-1-yl-1- ylidene)dinaphthalen-2-ol (H ₂ L ₂₉)	<i>SA, EF</i>	<i>EC, ST</i>	117

24.	Nd(III), Dy(III), Tb(III), Eu(III) Yb(III)	4-((2-hydroxynaphthalen-1-yl)methyleneamino)benzenesulfonamide (HL ₃₀)	<i>SA</i>	<i>EC, KP, AB, PA</i>	119
25.	Er(III), Pr(III), Yb(III)	(N ³ E,N ⁴ E)-N ³ ,N ⁴ -bis(anthracen-9-ylmethylene)pyridine-3,4-diamine (L ₃₁)	<i>SA, BS</i>	<i>EC, PA</i>	120
26.	La(III), Nd(III), Eu(III)	2-carboxybenzaldehyde <i>N</i> (4)-phenylthiosemi carbazone (HL ₃₂) 2-carboxybenzaldehyde <i>N</i> (4)-(4-chlorophenyl) thiosemicarbazone (HL ₃₃)	<i>SA-ATCC25923</i>	<i>EC-ATCC25922, ST-ATCC 14028, KP-ATCC 2146, KP-ATCC 1705</i>	121
27.	La(III), Pr(III), Nd(III), Sm(III), Eu(III), Gd(III), Dy(III), Er(III)	(¹ E,N'E)-2-fluoro-N'-(furan-2-ylmethylene) benzohydrazonic acid (HL ₃₄)	<i>SA, SPy, EF</i>	<i>EC, KP, PM, SE, PA</i>	122, 123