

Table 4. IR spectral bands (cm^{-1}) of SalBzGH and its complexes and their assignments^a.

Complexes	Hydrazide moiety		$n(\text{CN})$	$n_{\text{sym}}(\text{CO})$	$n(\text{NN})$	$n(\text{MO})$
	Amide I	Amide II				
SalBzGH	1700	1565	1600	1275	965	
[Mn(SalBzGH-H) ₂]	1680	1535	1580	1300	1000	380
$n(\text{NCO}^-)$						
[VO(SalBzGH-2H)(H ₂ O)]	1500	1330	1570	1290	980	400
[Co(SalBzGH-2H)(H ₂ O) ₃]	1550	1320	1570	1285	995	380
[Ni(SalBzGH-2H)(H ₂ O) ₃]	1545	1330	1575	1300	1000	385
[Cu(SalBzGH-2H)(H ₂ O)]	1545	1300	1575	1280	995	380
[Zn(SalBzGH-2H)(H ₂ O)]	1570	1335	1590	1290	1005	405
[Hg(SalBzGH-2H)(H ₂ O)]	1550	1345	1570	1280	990	425
K ₂ [Cd(SalBzGH-2H) ₂]	1545	1310	1590	1280	990	405

^aThe spectra are recorded as nujol mull**Table 5.** ¹H NMR spectral data (δ) of SalBzGH and its Zn(II) and Hg(II) complexes^a.

Proton(s)	SalBzGH		[M(SalBzGH-2H)(H ₂ O)]	
	(298 K)	(368 K)	Zn(II) (298 K)	Hg(II) (298 K)
-C ₆ H ₄ OH	11.45 ^s , 11.71 ^s	11.30 ^s	–	–
-N-NHCO-	10.05 ^s , 11.12 ^s	10.71 ^s	–	–
C ₆ H ₅ CONH-	8.66 ^t , 8.88 ^t	8.48 ^t	8.93 ^t	8.98 ^t
-NCH-	8.28 ^s , 8.42 ^s	8.43 ^s	8.64 ^s	8.57 ^s
-CH ₂ -	4.05 ^d , 4.43 ^d	4.19 ^d	4.10 ^d	4.48 ^d
Ring protons	7.90 ^m	7.90 ^m	7.91 ^m	7.83 ^m
	7.52 ^m	7.52 ^d	7.55 ^m	7.52 ^m
	7.19 ^m	7.24 ^d	7.07 ^m	7.17 ^s
	6.95 ^s	6.95 ^s	6.91 ^s	6.98 ^s
	6.86 ^s	6.86 ^s	6.52 ^s	6.88 ^s

^aThe spectra are recorded in DMSO-*d*₆
s – singlet; *d* – doublet; *t* – triplet; *m* – multiplet**Table 6.** ¹³C NMR spectral data (ppm) of SalBzGH and its Zn(II) and Hg(II) complexes^a.

Carbon atoms	SalBzGH		[M(SalBzGH-2H)(H ₂ O)]	
	298 K	368 K	Zn(II) (298 K)	Hg(II) (298 K)
-CONH-N=	168.8		173.59	175.17
C ₆ H ₅ CONH-	166.54, 165.51	166.59	166.50	166.53
-H ₂ C-	42.26, 41.34	41.23	–	–
-NCH-	147.25	–	143.47	142.52
C(1)	131.27	130.68	131.11	131.40
C(2)	128.29	127.75	128.26	128.57
C(3)	127.31	126.78	126.99	127.31
C(4)	133.84	133.98	134.28, 133.33	134.28, 133.33
C(1')	126.45	–	–	–
C(2')	157.28, 156.35	156.72	154.57	156.47
C(3')	118.59, 116.32	115.34	114.94	113.21
C(4')	141.19	–	–	140.30
C(5')	120.06, 119.30	118.87	119.38	119.70
C(6')	129.38	128.56	–	128.89

^aThe spectra are recorded in DMSO-*d*₆