Facile synthesis of imidazo[1,2-*a*]pyridines *via* a one-pot three-component reaction under solvent-free mechanochemical ball-milling conditions

Ali Maleki,* Shahrzad Javanshir, Maryam Naimabadi

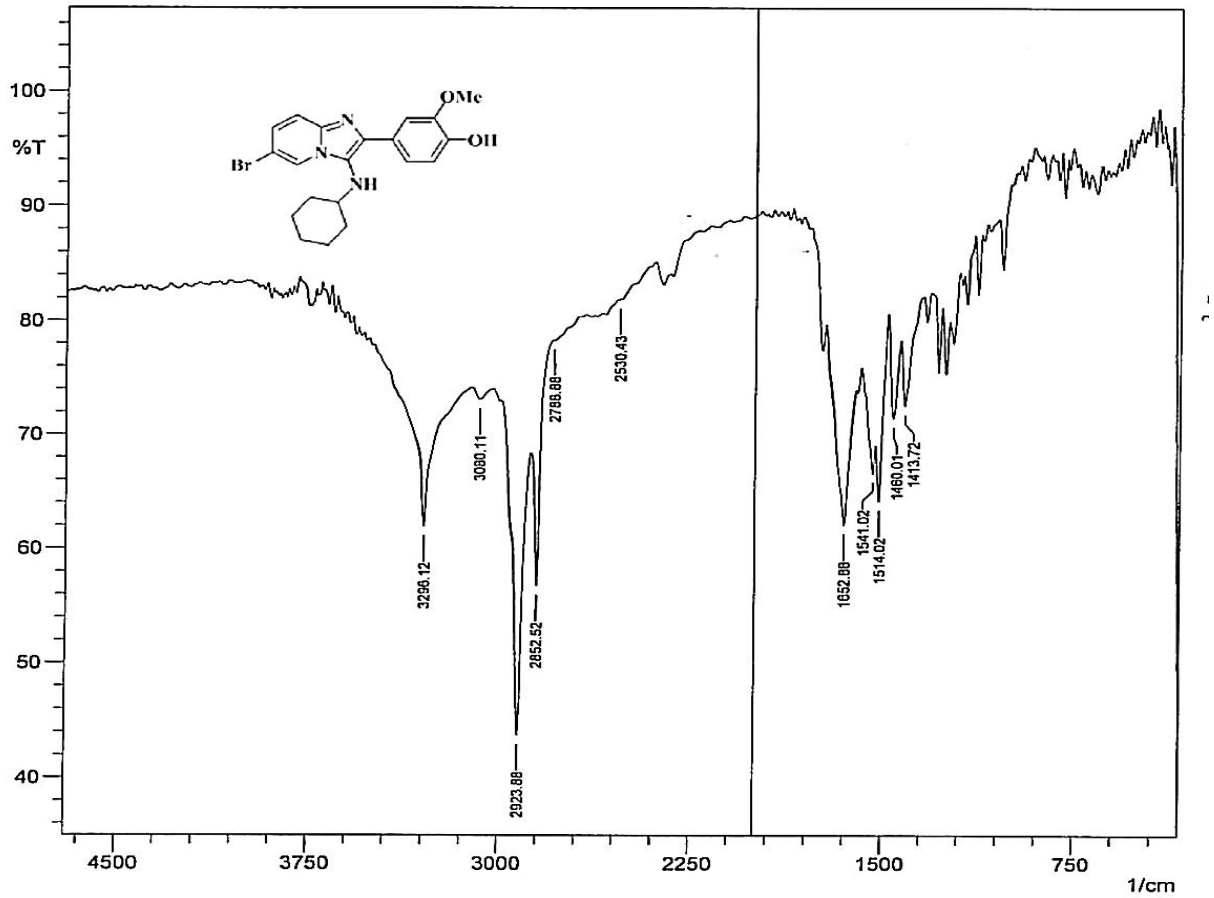
Department of Chemistry, Iran University of Science and Technology, Tehran 16846-13114, Iran

∗ Corresponding author. Fax: +98 21 73021584. *E-mail address: maleki@iust.ac.ir (A. Maleki)*

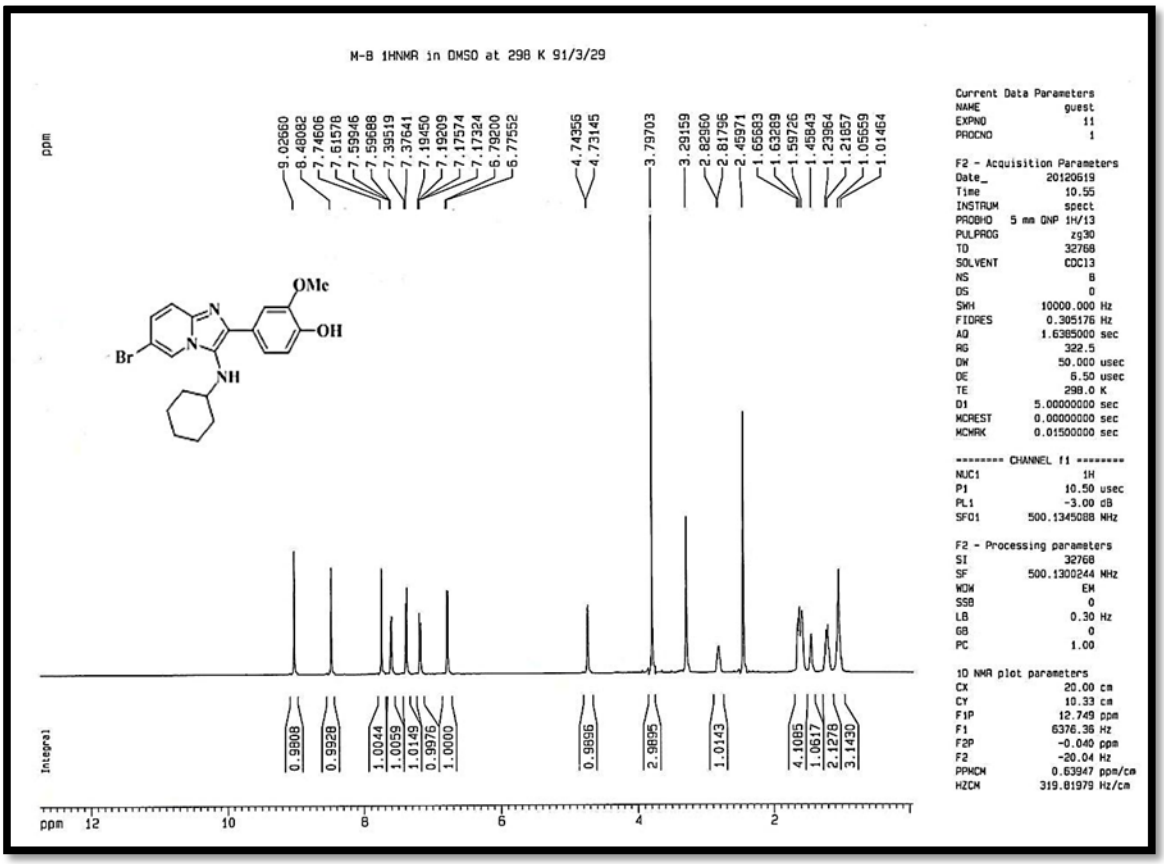
Melting points and CHN analysis data of the products 4a-o

Product	Formula	Mp (ºC)		CHN analysis data	
		Found	Reported	Found	Calcd
4a	$C_{19}H_{21}N_3$	178-180	176-178[9]	C, 78.50; H, 7.14; N, 14.28	C, 78.32; H, 7.26; N, 14.42
4b	$C_{19}H_{20}ClN_3$	180-181	179-181[13a]	C, 71.10; H, 6.24;N, 13.21	C, 70.04; H, 6.19;N, 12.90
4c	$C_{20}H_{23}N_3$	167-168	166-169[13b]	C, 78.42; H, 7.74; N, 13.66	C, 78.65; H, 7.59; N, 13.76
4d	$C_{19}H_{20}N_4O_2$	204-206	203-205[9]	C, 67.71; H, 6.15; N, 16.45	C, 67.84; H, 5.99; N, 16.66
4e	$C_{19}H_{19}BrClN_3$	147-149	144-146[9]	C, 56.44; H, 4.52; N, 10.55	C, 56.38; H, 4.73; N, 10.38
4f	$C_{19}H_{20}BrN_3$	206-208	207-208[13c]	C, 61.39; H, 5.23; N, 11.56	C, 61.63; H, 5.44; N, 11.35
4g	$C_{17}H_{18}BrN_3$	207-208	206-208[13d]	C, 59.45; H, 5.33; N, 12.56	C, 59.31; H, 5.27; N, 12.21
4h	$C_{18}H_{21}N_3$	217-219	217-220[13d]	C, 77.41; H, 7.74; N, 15.25	C, 77.38; H, 7.58; N, 15.04
4i	$C_{20}H_{22}N_4O_2$	208-210	208-210[13c]	C, 68.40; H, 6.53; N, 16.21	C, 68.55; H, 6.33; N, 15.99
4j	$C_{19}H_{20}FN_3$	166-168	167-169[9]	C, 73.48; H, 6.39; N, 13.28	C, 73.76; H, 6.52; N, 13.58
4k	$C_{19}H_{20}BrN_3$	169-171	166-168[9]	C, 61.52; H, 5.21; N, 11.63	C, 61.63; H, 5.44; N, 11.35
4l	$C_{19}H_{19}BrClN_3$	213-214	213-214[13e]	C, 56.56; H, 4.47; N, 10.23	C, 56.38; H, 4.73; N, 10.38
4m	$C_{17}H_{19}N_3S$	165-167	165-166[13f]	C, 68.79; H, 6.28; N, 14.02	C, 68.65; H, 6.44; N, 14.13
4n	$C_{19}H_{23}N_3$	209-211	210-212[13g]	C, 77.36; H, 7.75; N, 14.49	C, 77.78; H, 7.90; N, 14.32
4o	$C_{20}H_{22}BrN_3O_2$	234-236	New	C, 57.57; H, 5.22; N, 10.31	C, 57.70; H, 5.33; N, 10.09

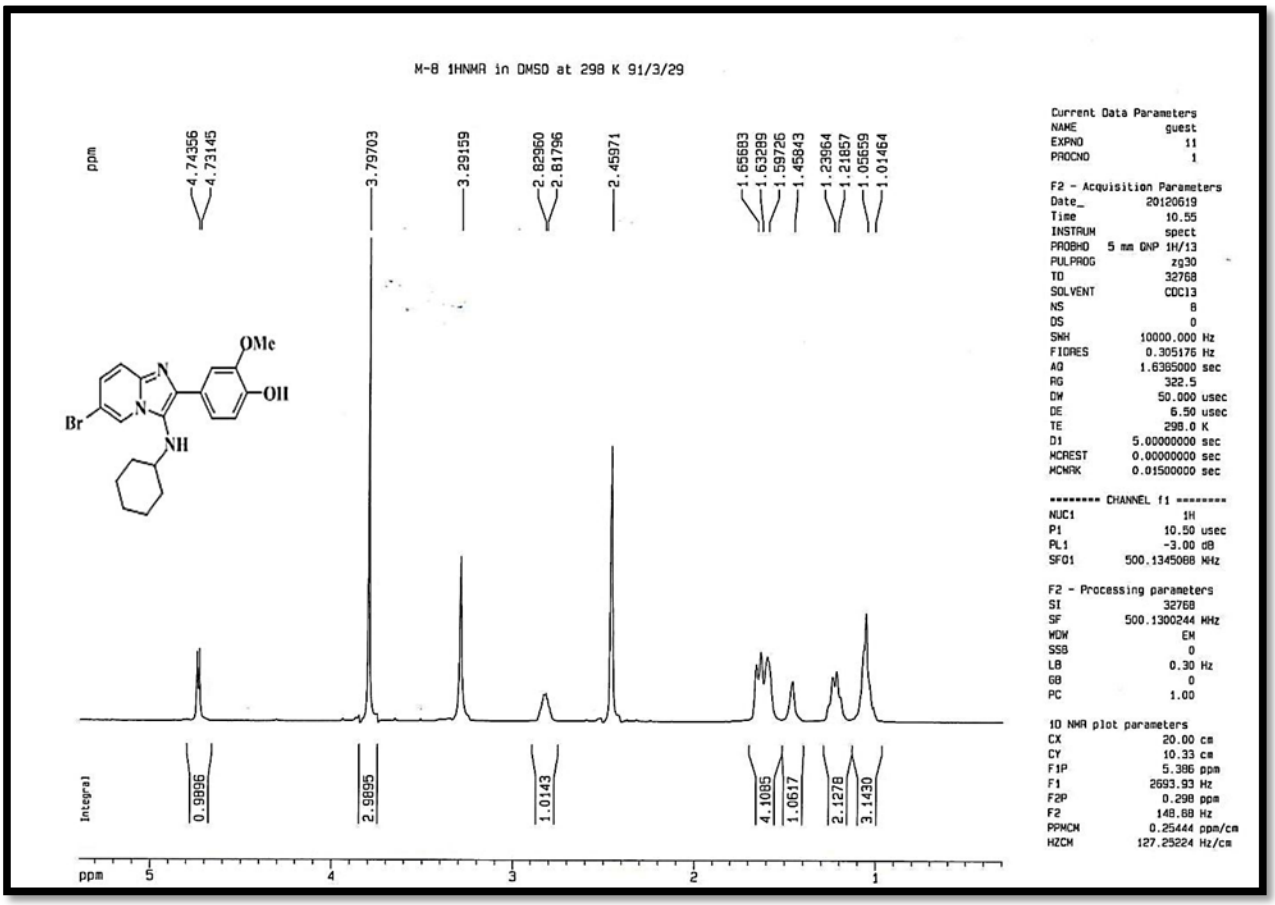
Spectral analysis of 4-(6-bromo-3-(cyclohexylamino)imidazo[1,2-*a*]pyridin-2-yl)-2-methoxyphenol (4o):



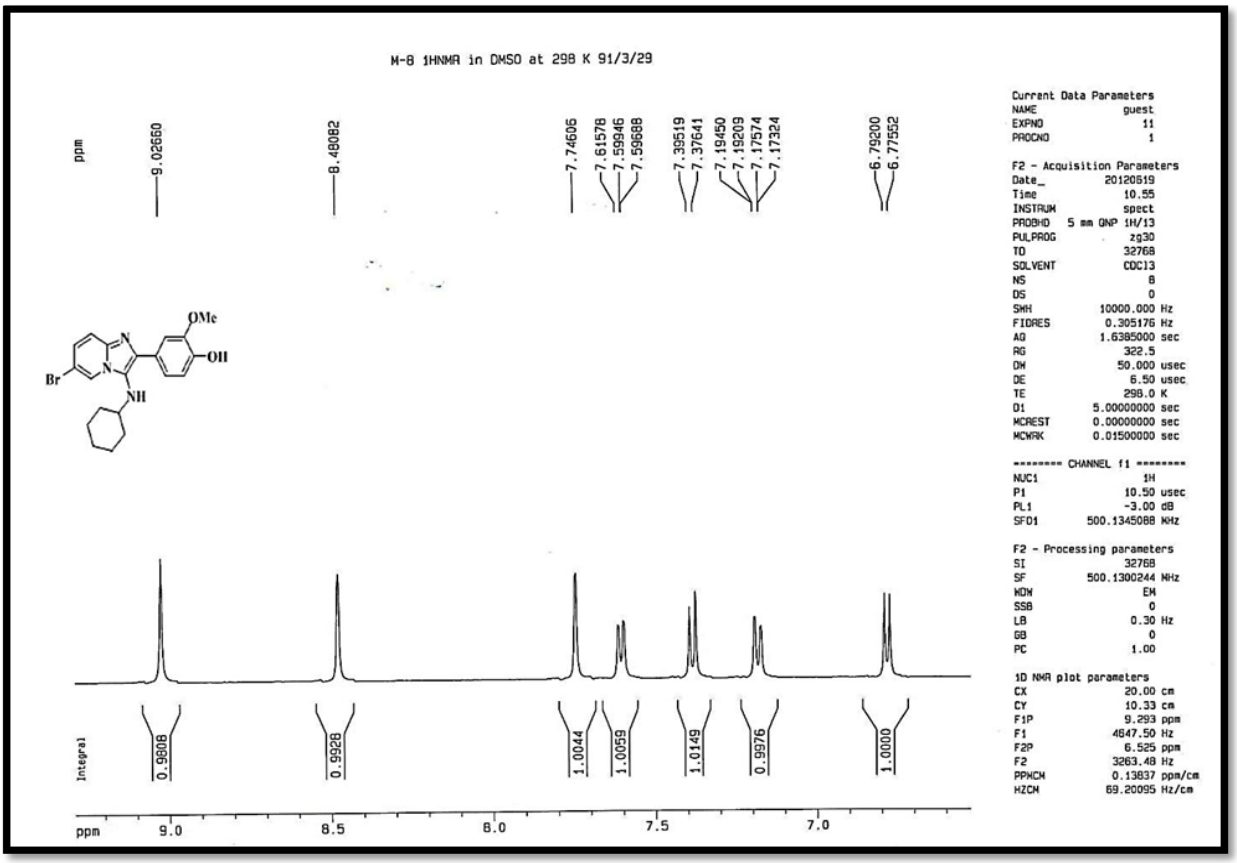
FT-IR spectra of **4o**



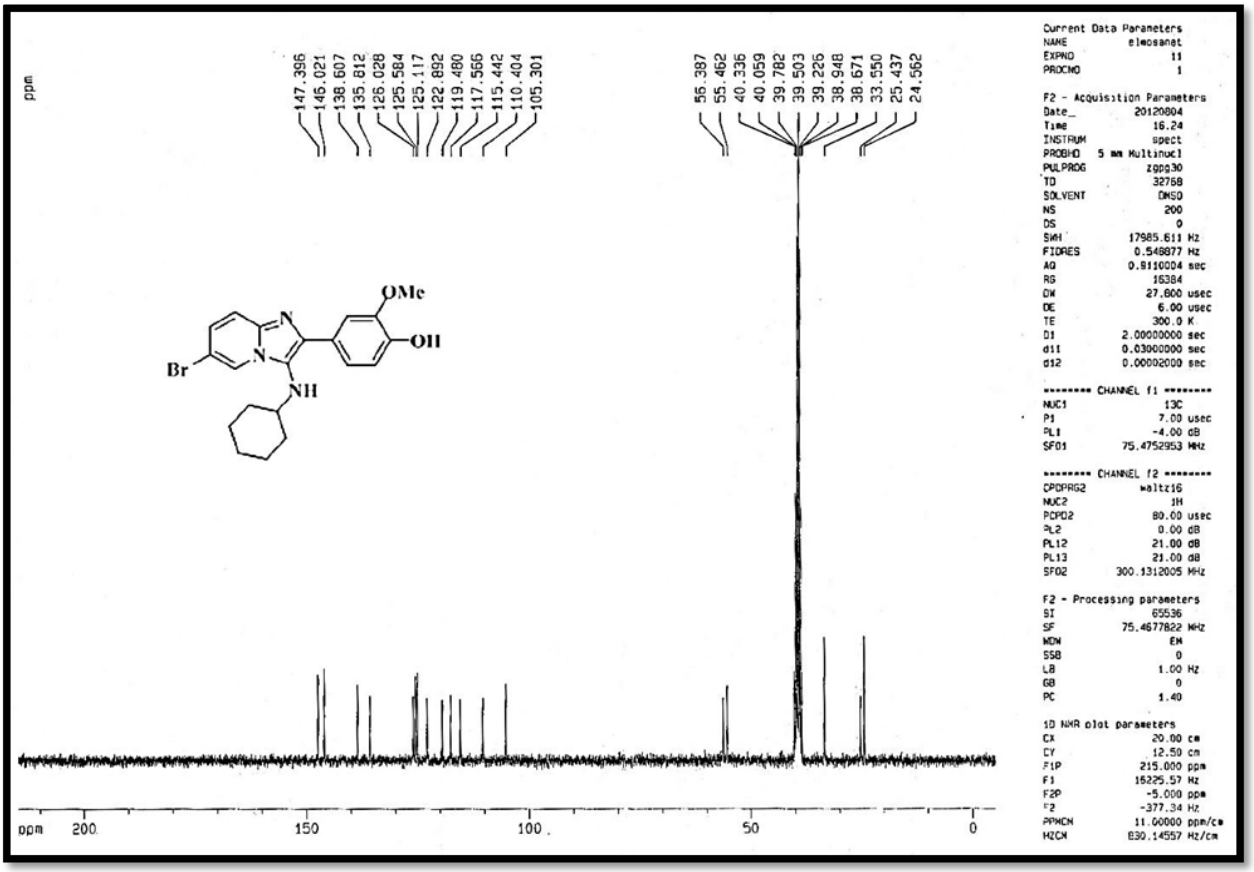
^{1}H NMR spectra of **4o**



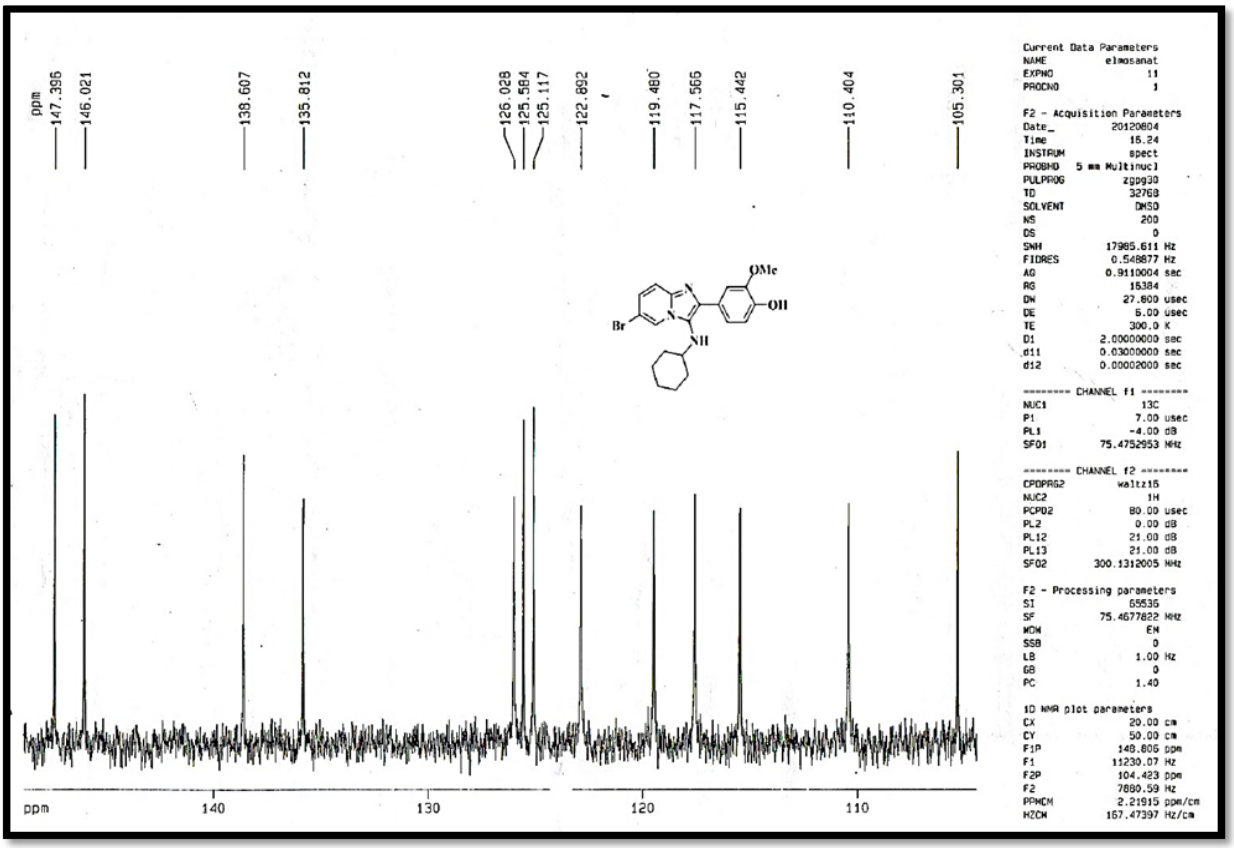
^{1}H NMR spectra of **4o**



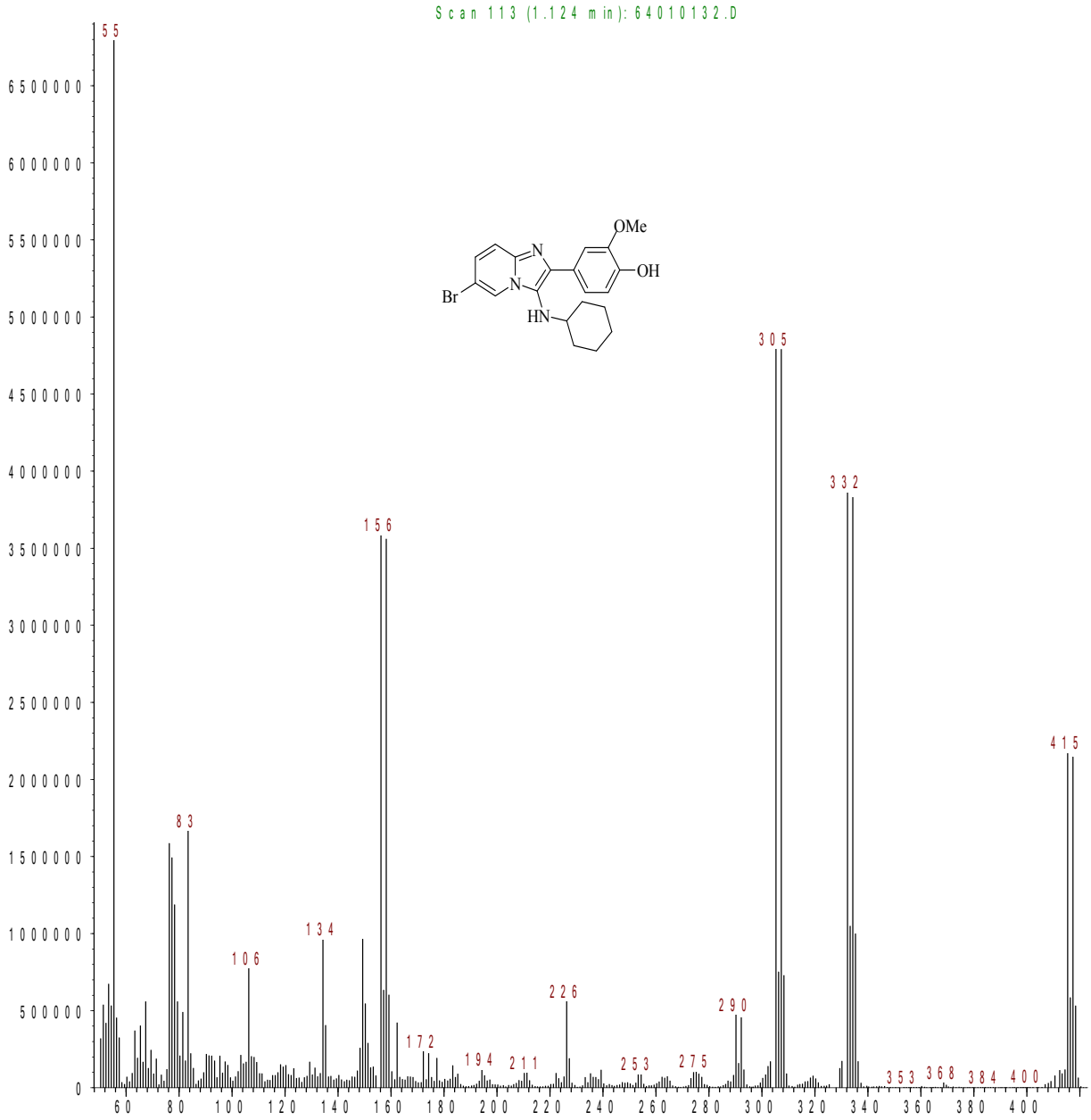
^{1}H NMR spectra of **4o**



^{13}C NMR spectra of **4o**



^{13}C NMR spectra of **4o**



Mass spectroscopy of **4o**