

Chemistry 416, Dr. Glaser

Applications of Mass Spectroscopy: Isotope Pattern of Sn Compound.

Predict the peaks in the vicinity of the molecular ion peak for the compound $C_{15}H_{28}Sn$ considering the natural abundance of ^{13}C and of the various Sn isotopes. Listed are the individual isotopes, their abundances in percent, their exact masses, and their half-lives in this sequence. Consider only isotopes with half-lives of days and years.

^{112}Sn	0.97(1)	111.904826	
^{113m}Sn			21.4 m
^{113}Sn		112.905176	115.1 d
^{114}Sn	0.65(1)	113.902784	
^{115}Sn	0.36(1)	114.903348	
^{116}Sn	14.53(11)	115.901747	
^{117m}Sn			13.6 d
^{117}Sn	7.68(7)	116.902956	
^{118}Sn	24.22(11)	117.901609	
^{119m}Sn			293. d
^{119}Sn	8.58(4)	118.903310	
^{120}Sn	32.59(10)	119.902200	
^{121m}Sn			\approx 55. y
^{121}Sn		120.904238	27.0 h
^{122}Sn	4.63(3)	121.903440	
^{123m}Sn			40.1 m
^{123}Sn		122.905722	129.2 d
^{124}Sn	5.79(5)	123.905274	
^{125m}Sn			9.52 m

Considering the molecular formula, suggest a possible structure for this Sn compound. Any reasonable structure will do. (This part of the question has nothing to do with MS, I just want you to think about Sn chemistry a bit.)