

Supplementary Material

Synthesis of novel isoxazoline and isoxazolidine derivatives: carboxylic acids and delta bicyclic lactones *via* the nucleophilic addition of bis(trimethylsilyl)ketene acetals to isoxazoles

Saulo C. Rosales-Amezcuca,^a Ricardo Ballinas-Indili,^a Morelia E. López-Reyes,^b Héctor A. Rosas-Castañeda,^a R. Alfredo Toscano,^a Cecilio Álvarez-Toledano ^{*a}

^a*Instituto de Química, Universidad Nacional Autónoma de México (UNAM), Circuito Exterior s/n, Ciudad Universitaria, Cd. de México, 04510, México*

^b*Departamento de Química, Universidad de Guadalajara, Blvd. Marcelino García Barragán 1421, Guadalajara, 44430, México*

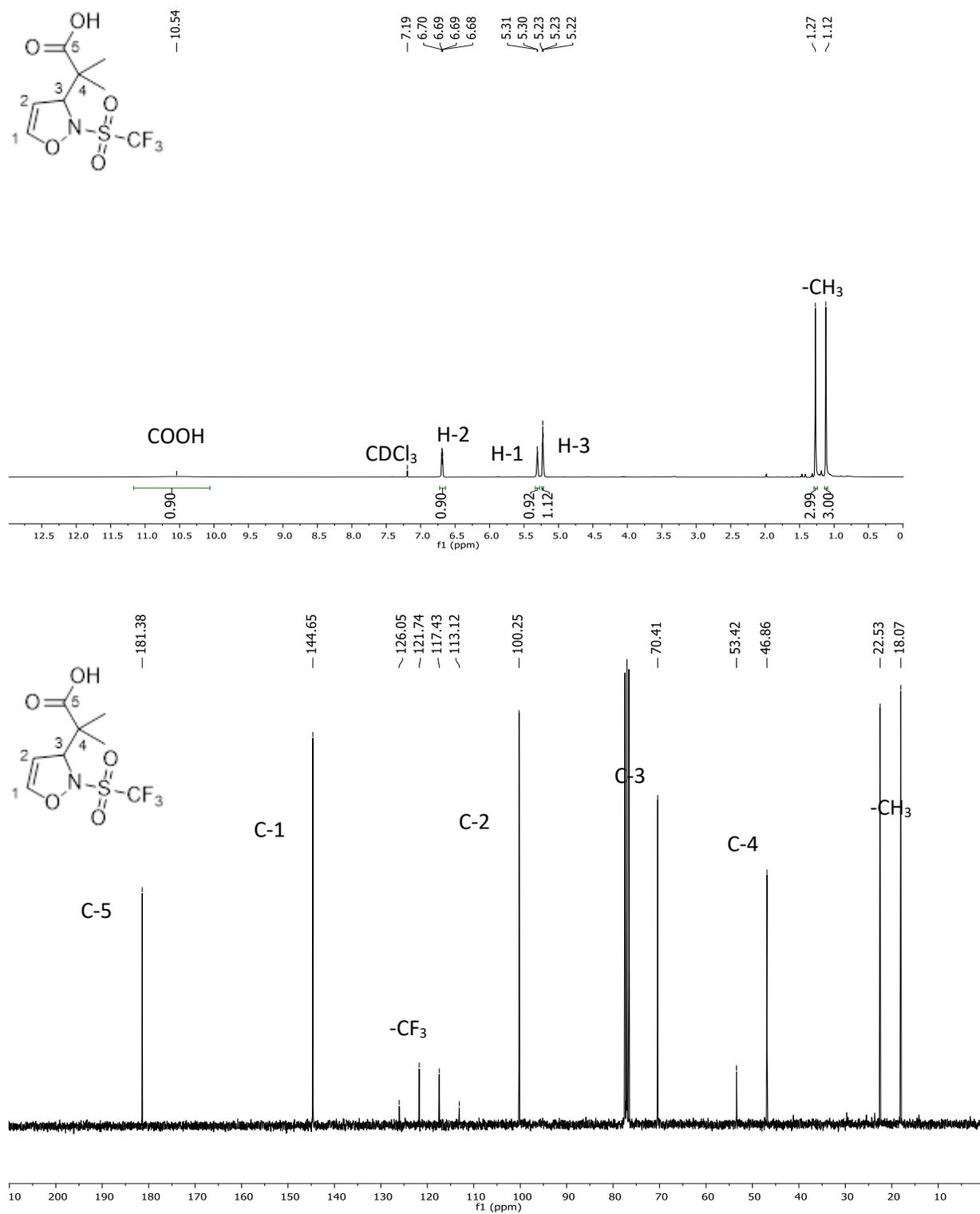
Email: cecilio@unam.mx

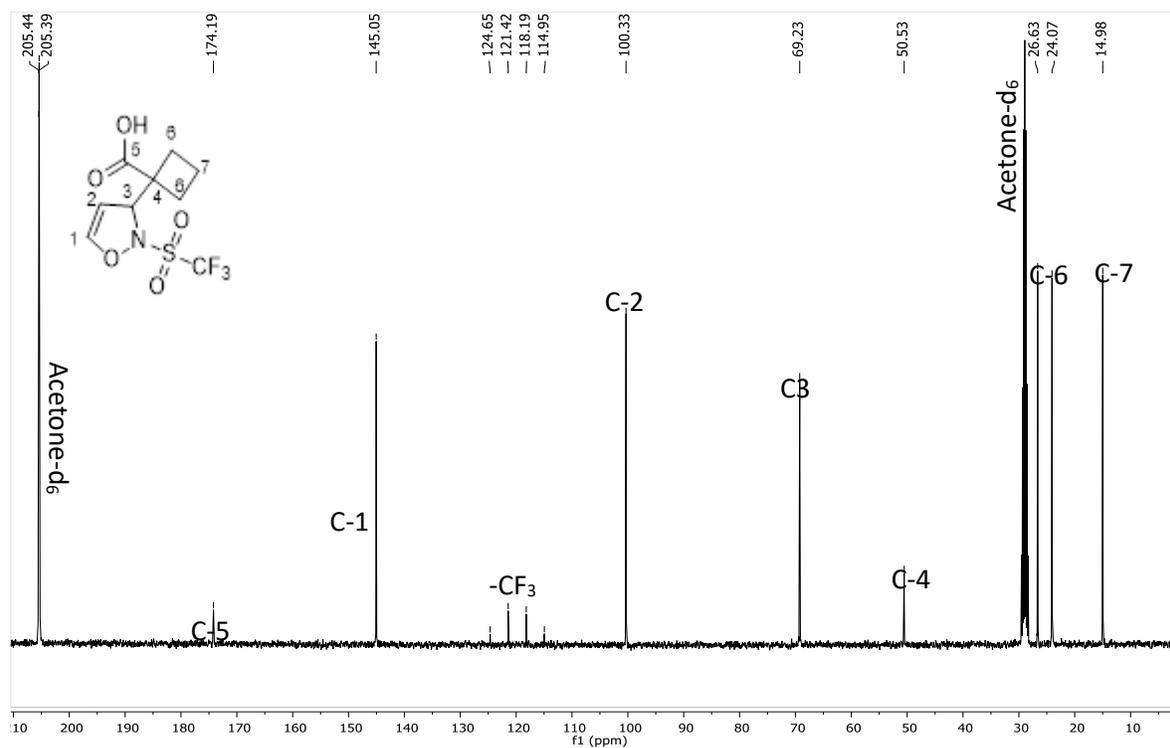
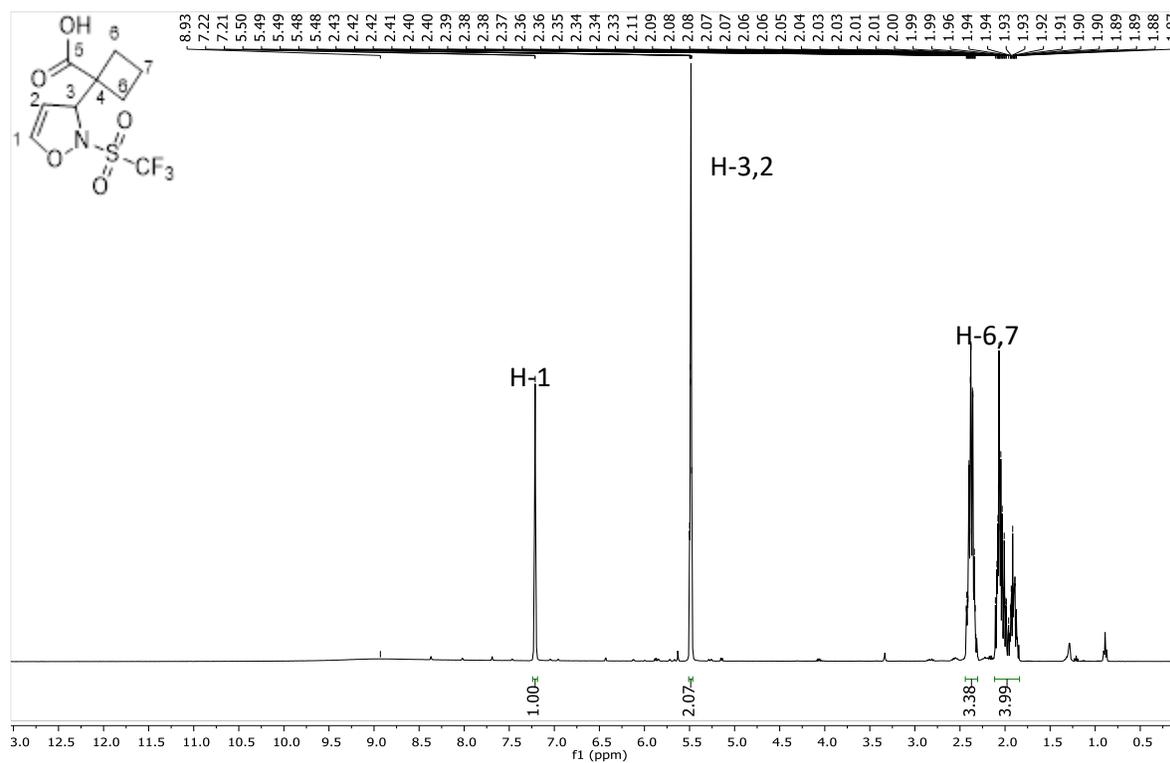
Table of Contents

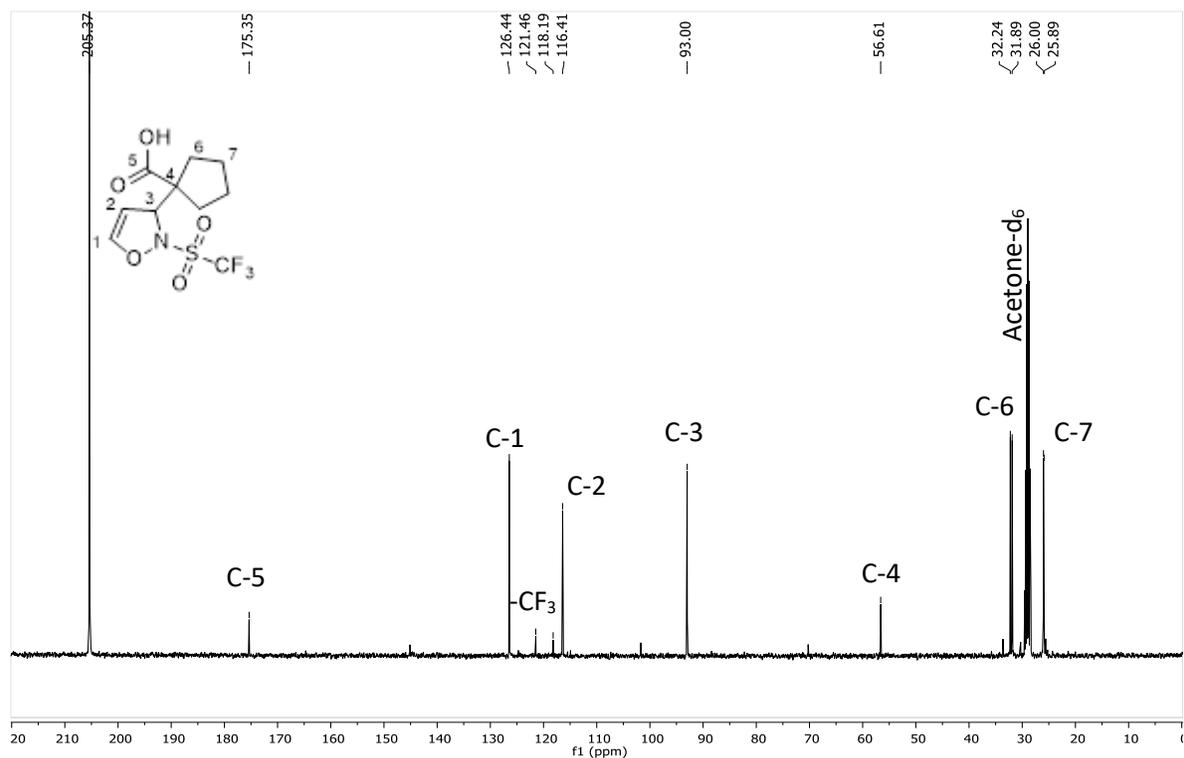
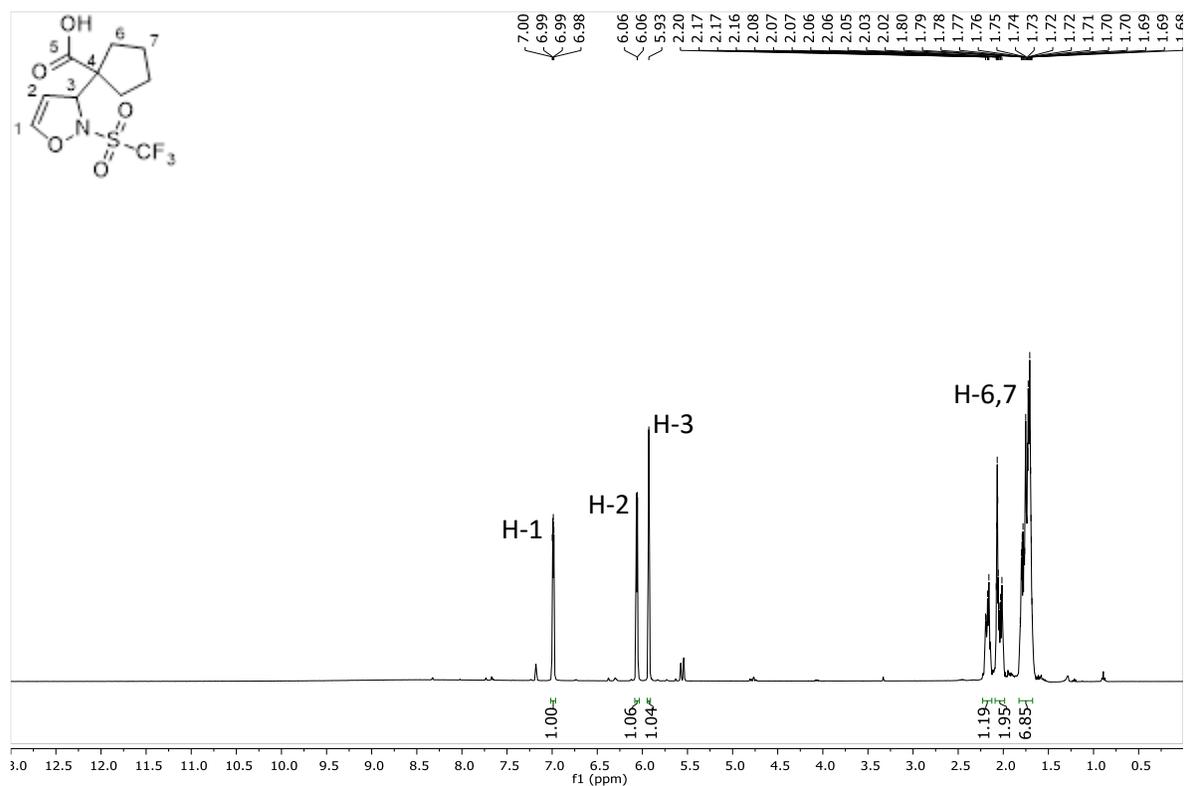
1. ¹ H and ¹³ C spectra of 2-methyl-2-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)propanoic acid. (3a)	S3
2. ¹ H and ¹³ C spectra of 1-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)cyclobutanecarboxylic acid. (3b)	S4
3. ¹ H and ¹³ C spectra of 1-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)cyclopentanecarboxylic acid. (3c).....	S5
4. ¹ H and ¹³ C spectra of 1-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)cyclohexanecarboxylic acid). (3d).....	S6
5. ¹ H and ¹³ C spectra of 1-methyl-3-oxo-2,7-dioxa-6-azaspiro[bicyclo[3.2.1]octane-4,1'-cyclohexan]-6-yl trifluoromethanesulfonate. (4a)	S7
6. ¹ H and ¹³ C spectra of 1,4,4-trimethyl-3-oxo-2,7-dioxa-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4b)	S8
7. ¹ H and ¹³ C spectra of 4,4-dimethyl-3-oxo-1-phenyl-2,7-dioxa-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4c).....	S9

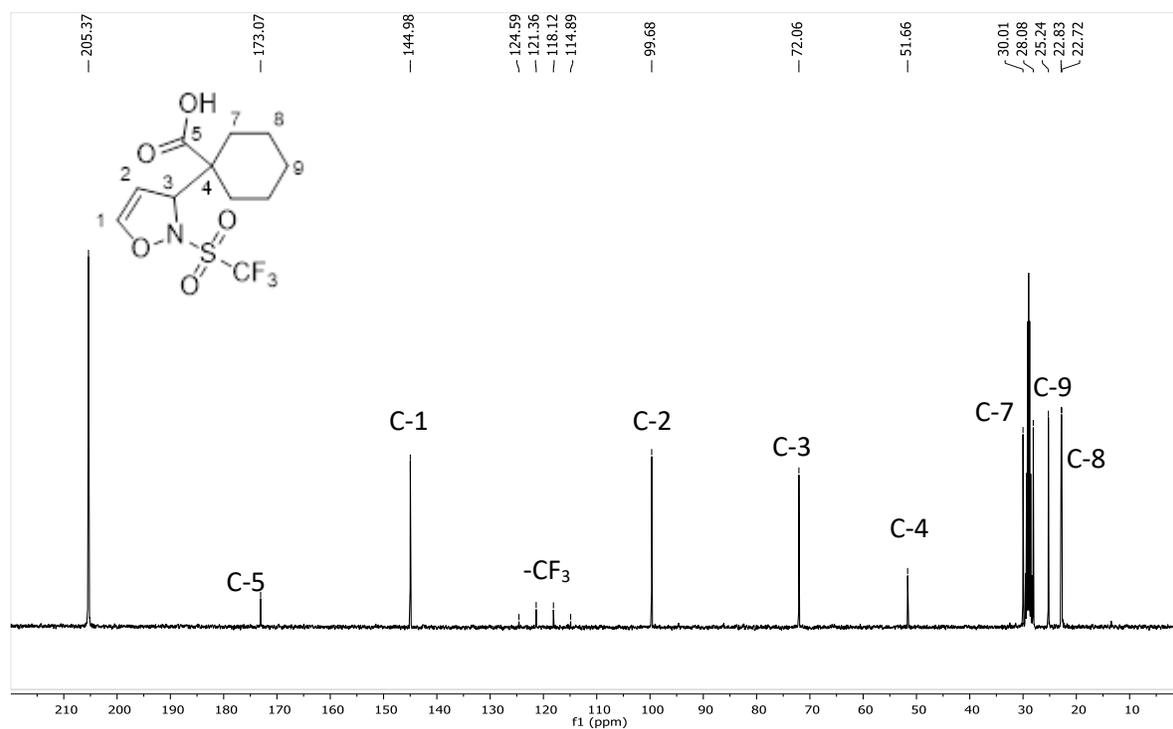
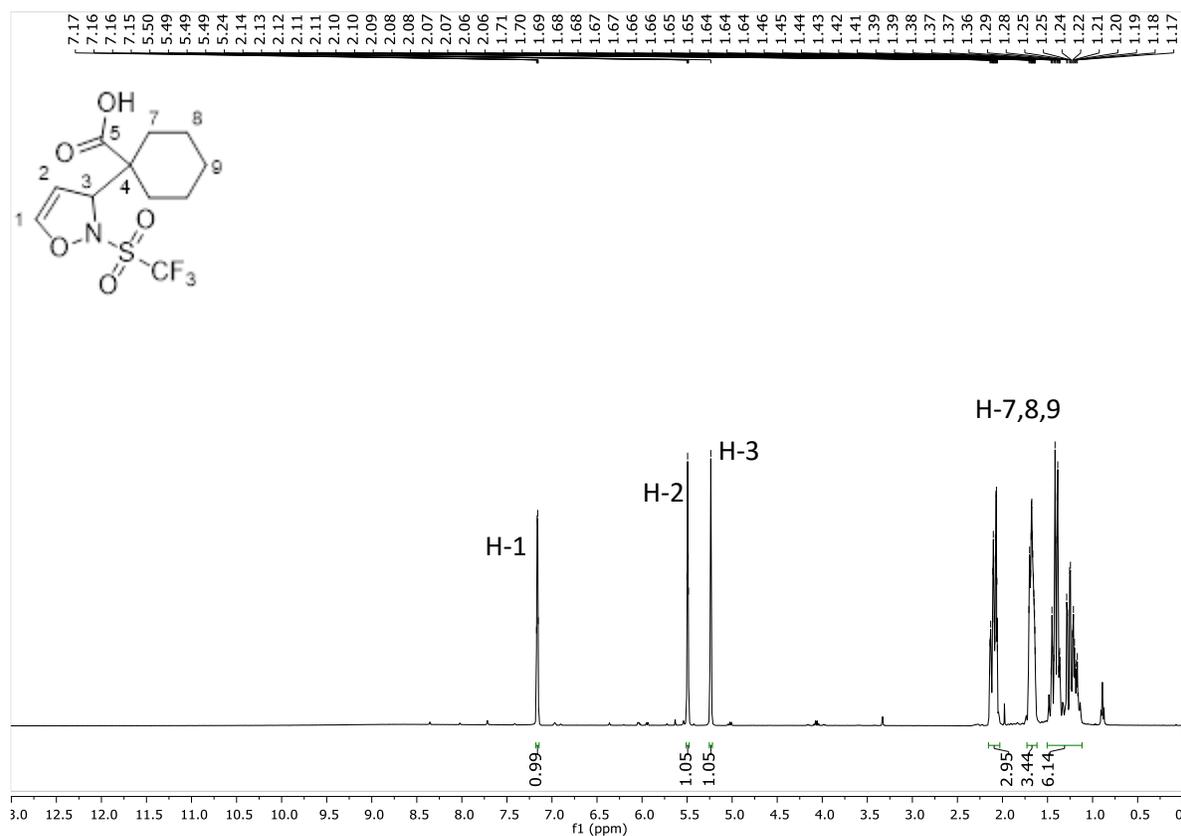
8. ^1H and ^{13}C spectra of 1-(4-methoxyphenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4d) S10
9. ^1H and ^{13}C spectra of 1-(4-chlorophenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4e) S11
10. ^1H and ^{13}C spectra of 1-(4-fluorophenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4f) S12
11. ^1H and ^{13}C spectra of 1-(4-bromophenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4g) S13

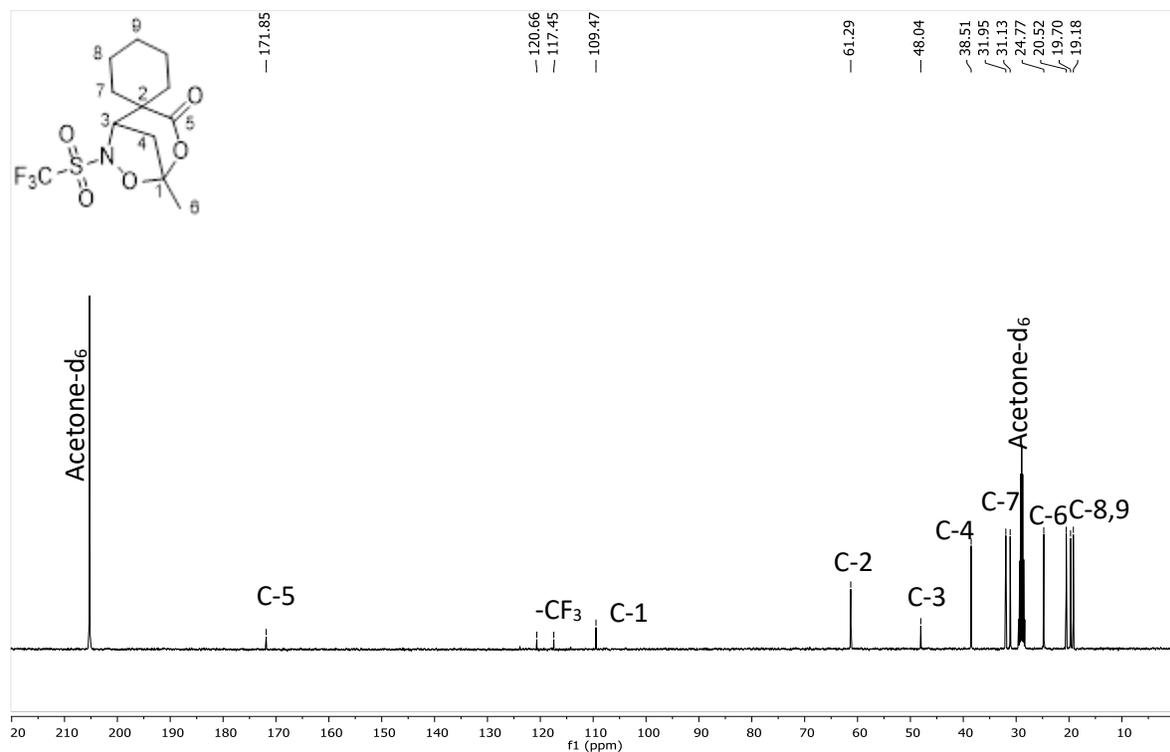
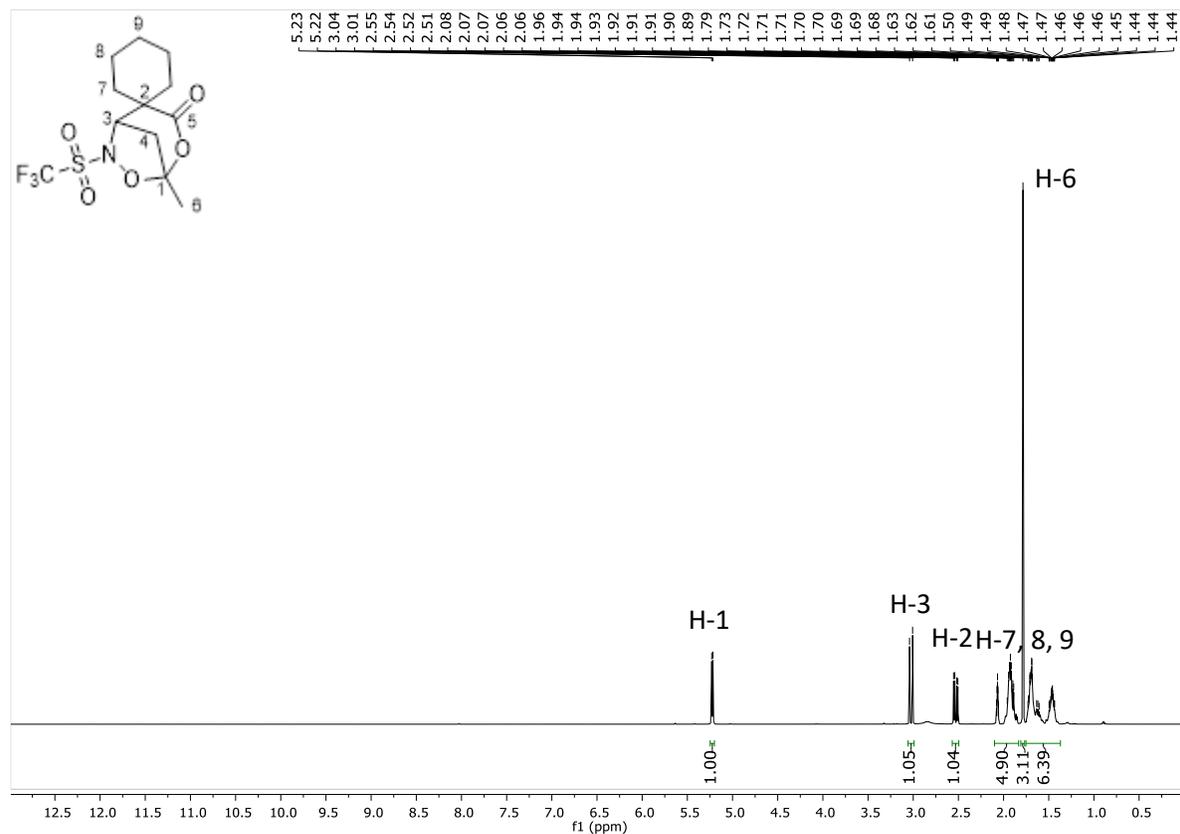
S1 ^1H and ^{13}C spectra of 2-methyl-2-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)propanoic acid.(3a)



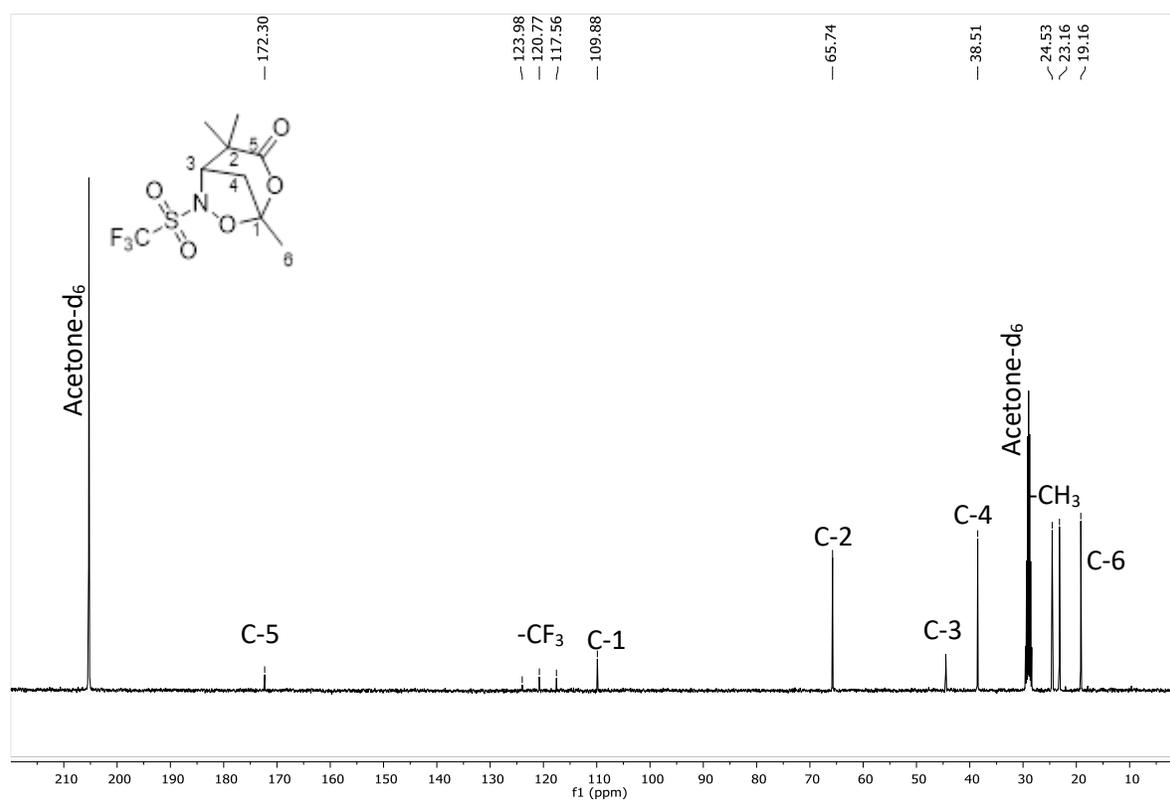
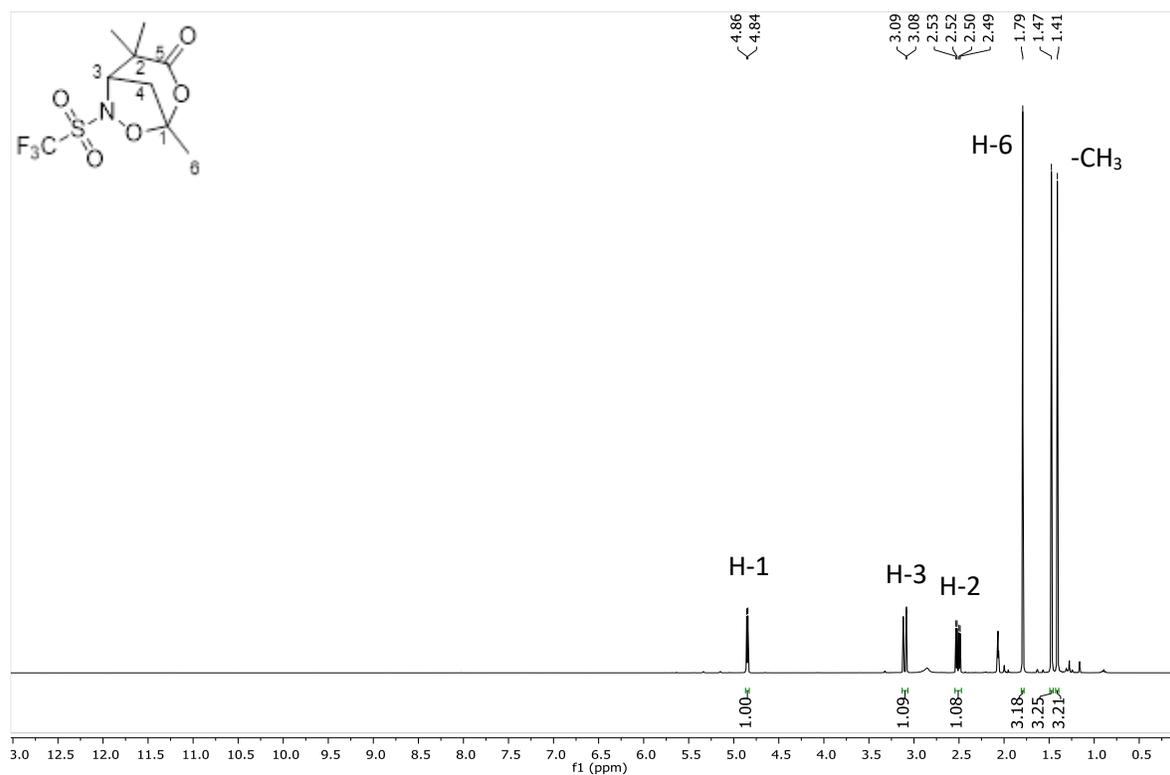
S2 ^1H and ^{13}C spectra of 1-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)cyclobutanecarboxylic acid. (3b)

S3 ^1H and ^{13}C spectra of 1-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)cyclopentanecarboxylic acid. (3c)

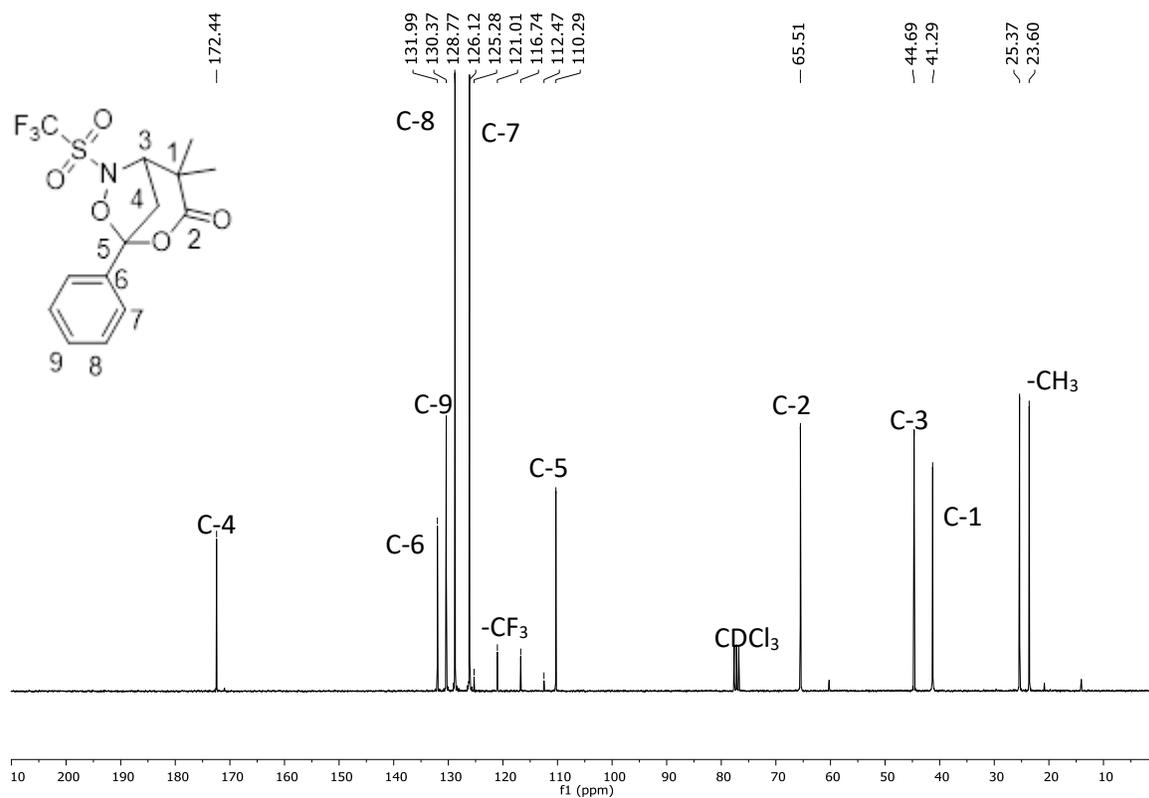
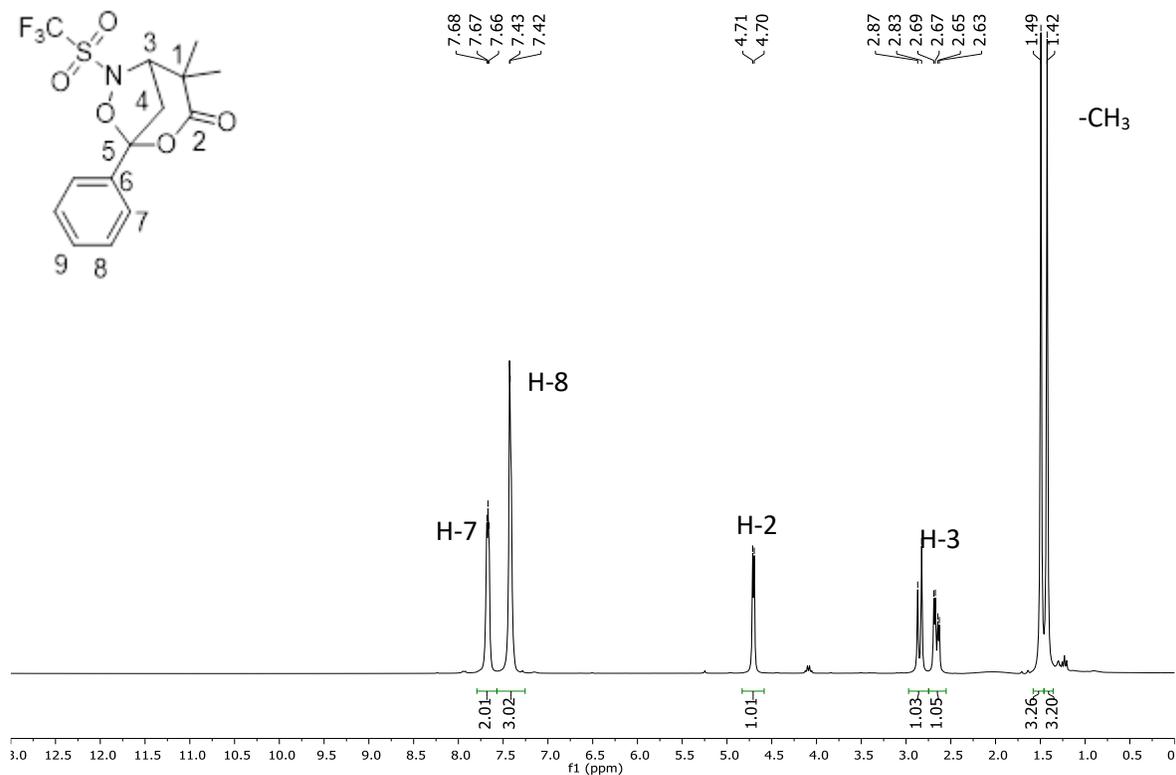
S4 ^1H and ^{13}C spectra of 1-(2-(((trifluoromethyl)sulfonyl)oxy)-2,3-dihydroisoxazol-3-yl)cyclohexanecarboxylic acid). (3d)

S5 ^1H and ^{13}C spectra of 1-methyl-3-oxo-2,7-dioxa-6-azaspiro[bicyclo[3.2.1]octane-4,1'-cyclohexan]-6-yl trifluoromethanesulfonate. (4a)

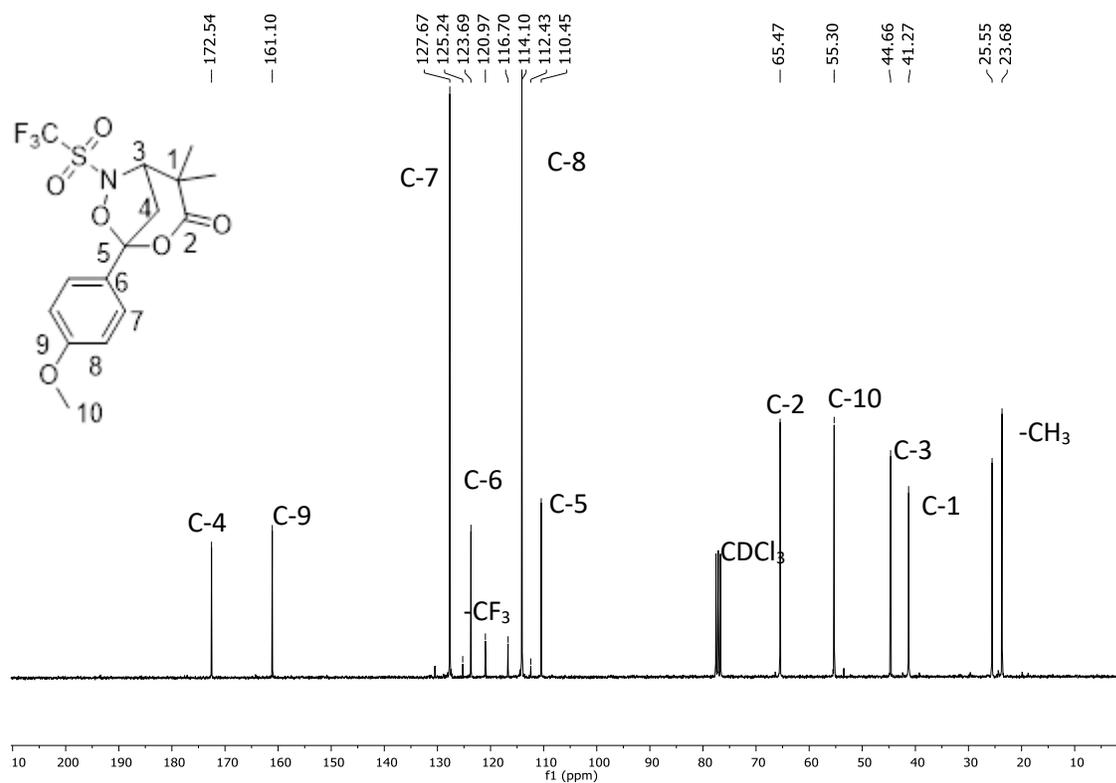
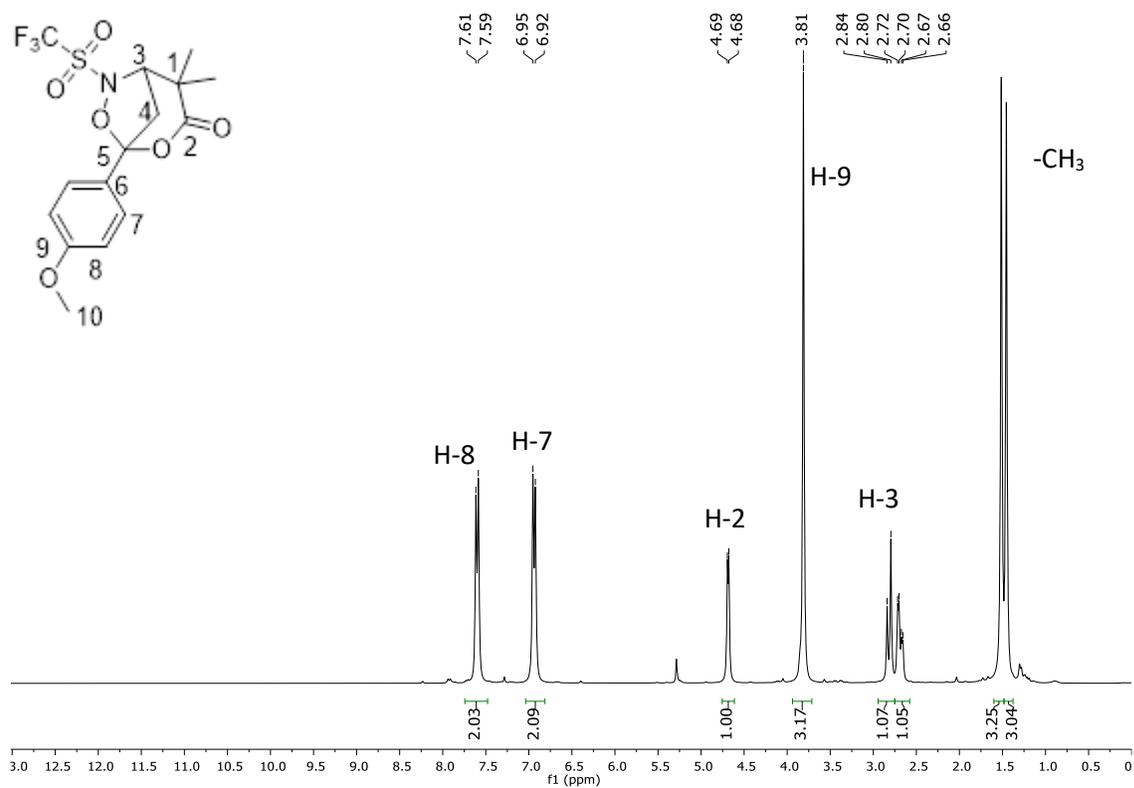
S6 ^1H and ^{13}C spectra of 1,4,4-trimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4b)



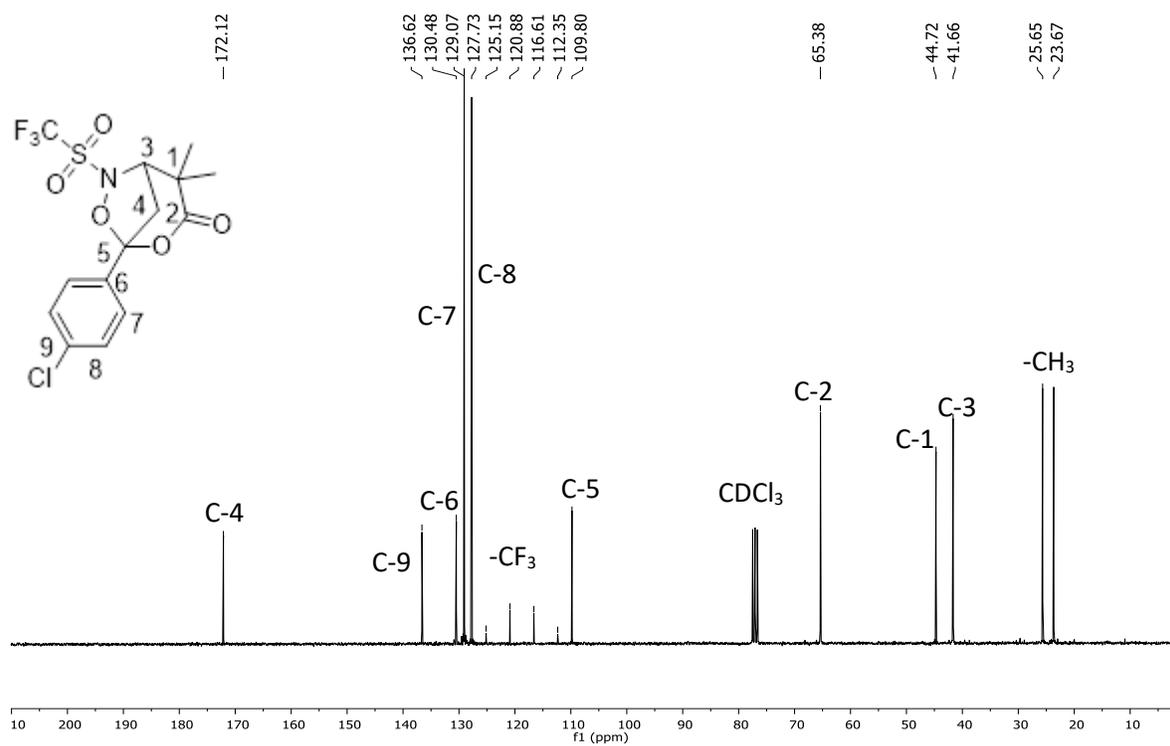
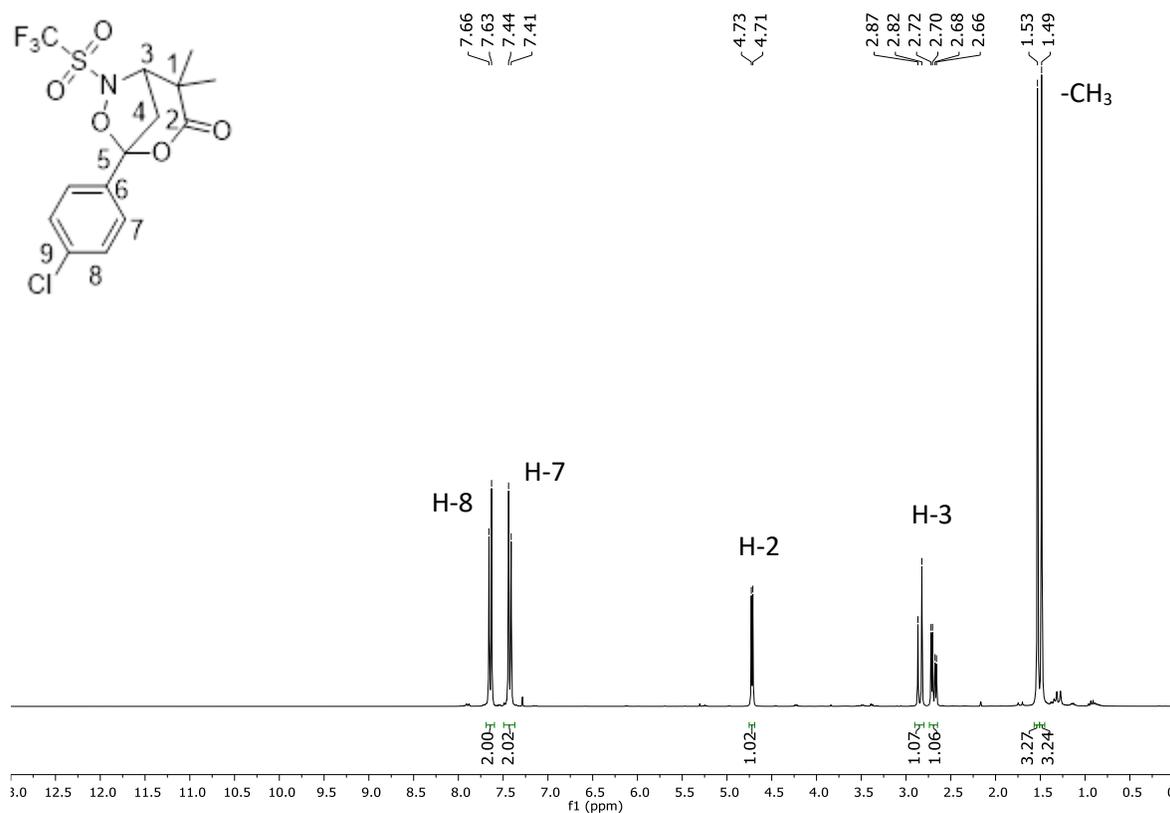
S7 ^1H and ^{13}C spectra of 4,4-dimethyl-3-oxo-1-phenyl-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4c)



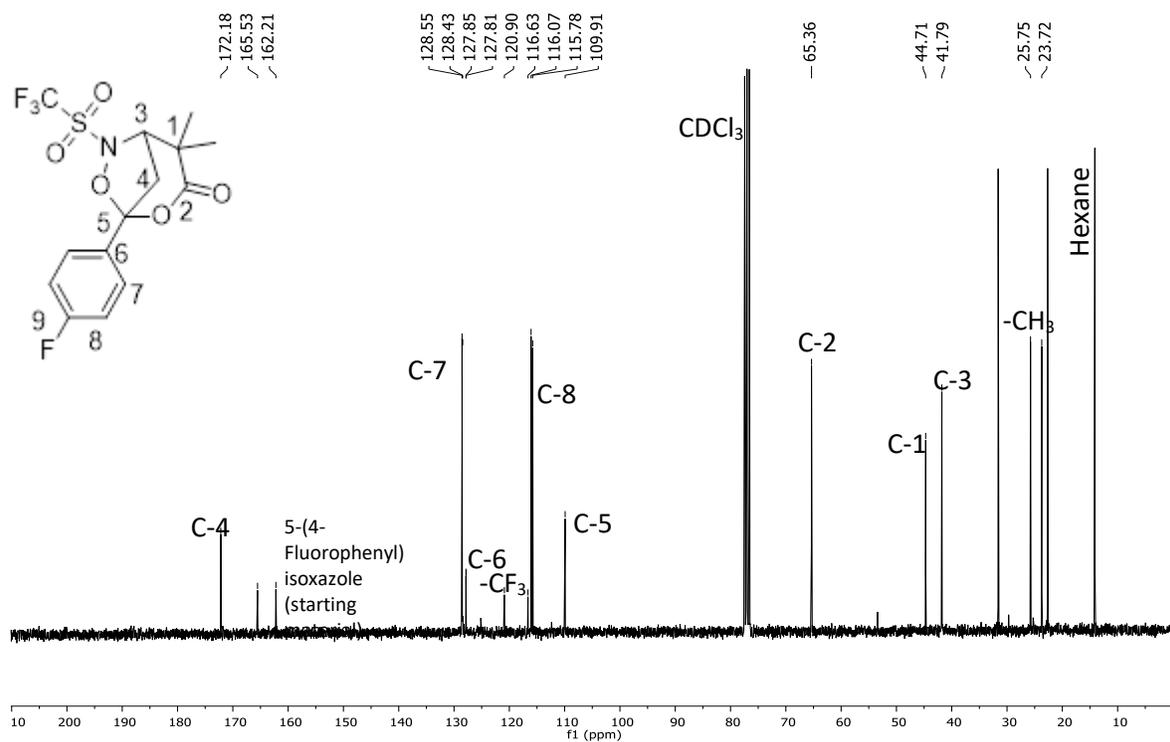
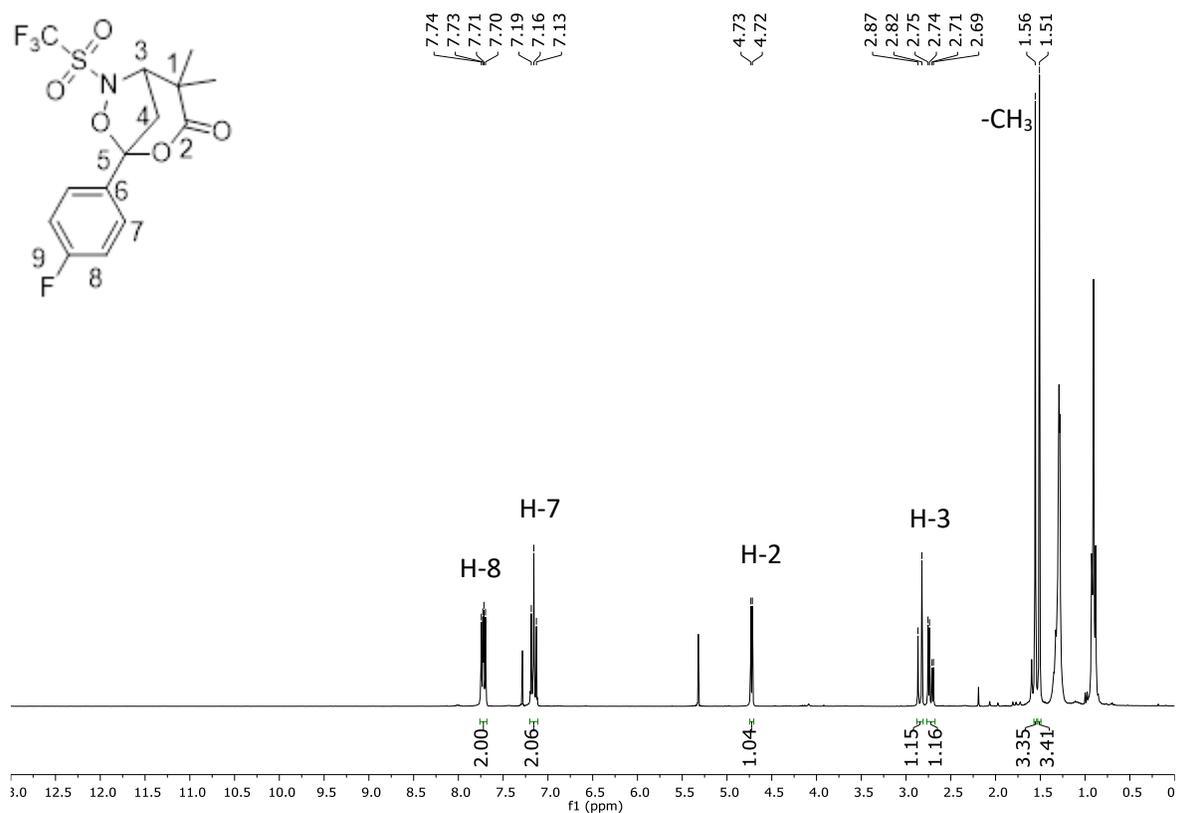
S8 ^1H and ^{13}C spectra of 1-(4-methoxyphenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4d)



S9 ^1H and ^{13}C spectra of 1-(4-chlorophenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4e)



S10 ^1H and ^{13}C spectra of 1-(4-fluorophenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4f)



S11 ^1H and ^{13}C spectra of 1-(4-bromophenyl)-4,4-dimethyl-3-oxo-2,7-dioxo-6-azabicyclo[3.2.1]octan-6-yl trifluoromethanesulfonate. (4g)