**p-Aminobenzene-sulfonamide derivatives of Substituted Pyrimidines as human Carbonic Anhydrase Inhibitors.**

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All commercially available chemicals were of analytical quality and solvents were either of analytical quality or used after further purification. The reactions were monitored by thin-layer chromatography using a Merck type silica gel 60 GF 254 thin-layer plate, with the developed chromatograms visualised under 254 nm UV light.

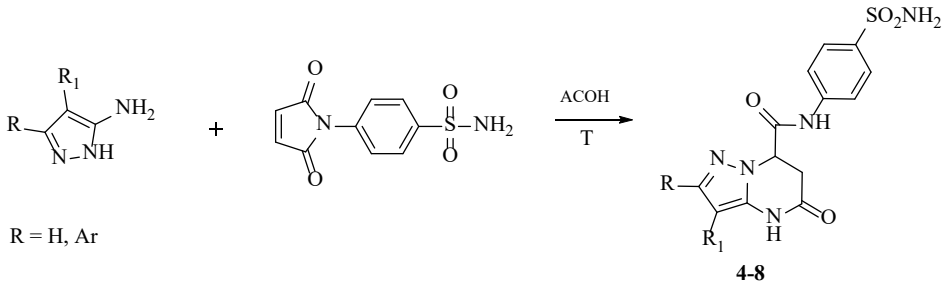
Melting point determinations were performed using a Büchi M-560 melting point apparatus and data are given in $^{o}$C.

LS/MS measurements were performed on a Agilent Technologies 1260 infinity with Agilent 6230 TOF LC/ mass spectrometer.

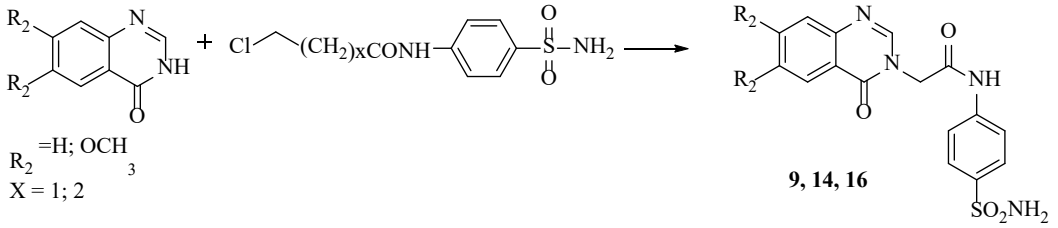
Nuclear magnetic resonance (NMR) measurements were carried out using a Varian MercuryPlus Bruker Avance III ($^{1}$H: 600 MHz, $^{13}$C: 150MHz) spectrometer equipped with a standard and a cryogenic head, respectively. For structural assignment, samples were prepared by dissolving 10 mg of the solid compounds in 600 μL of DMSO-d6. The NMR spectra were recorded at room temperature using the 2H signal of the solvent as lock and tetrame-thylsilane as internal standard (TMS = 0 ppm) or spectra were referenced to the solvent signal ($^{1}$H: 2.50 ppm and $^{13}$C: 39.50 ppm). The solvent is given in the characterization of the compound. Chemical shift values (δ) are in ppm and coupling constants (J) in Hz. The multiplicity is given using designations commonly used in spectroscopy. Structural characterization was performed using $^{1}$H, $^{13}$C experiments.

**1.**

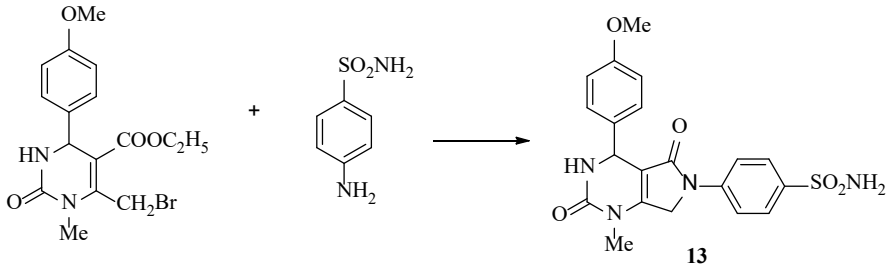
On condensing aminopyrazoles with maleic anhydride in acetic acid on heating to 80-100 °C , the compounds **4-8** were synthesized. [41 ]




For the synthesis of compounds **9,14,16,** chloroacetamide and chloropropionylamide were probably used from 4-aminobenzenesulfamide.[42].

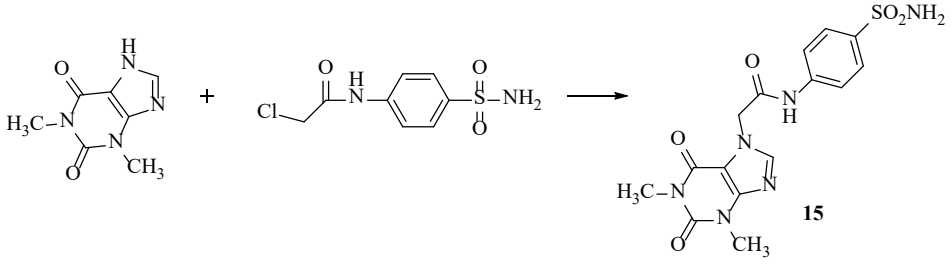



To obtain compounds **10-12**, diazotization of 1,3-pyrimidinediones with aryldiazonium salt of 4-aminobenzenesulfamide was apparently used. [43]

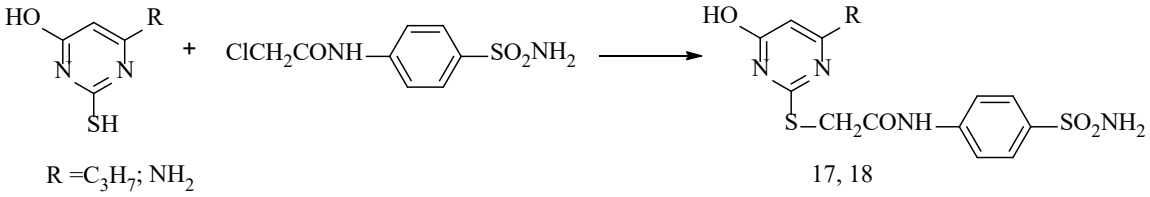



Compound 13 was synthesized according to [44]

Compound **15** was apparently synthesized by alkylation of theophylline with the corresponding chloroacetamide .

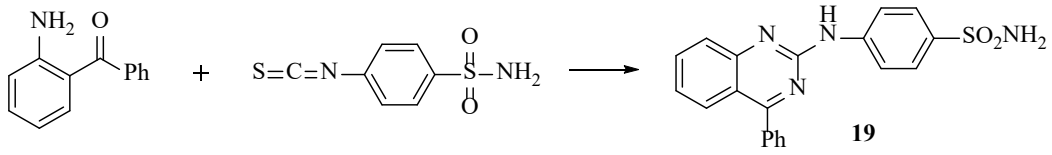


Pyrimidines **17-18** were apparently prepared by alkylation of the corresponding 2-mercaptopyrimidines with chloroacetamide from 4-aminobenzenesulfamide. [45]



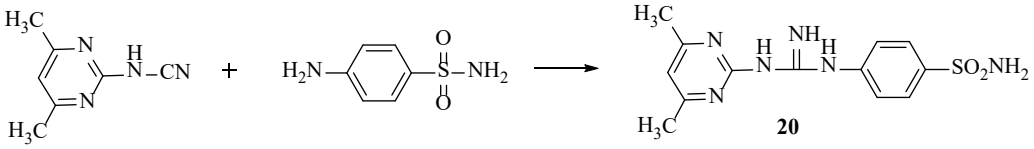
R =$C_3H_7$; $NH_2$ 17, 18

Compound **19** is apparently obtained by reaction of 2-benzoylaniline and isothiocyanate obtained from 4-aminobenzenesulfamide. [46]



**19**

Guanidine 20 was apparently obtained from the corresponding cyanamide and 4-aminobenzenesulfamide [47].



**20**

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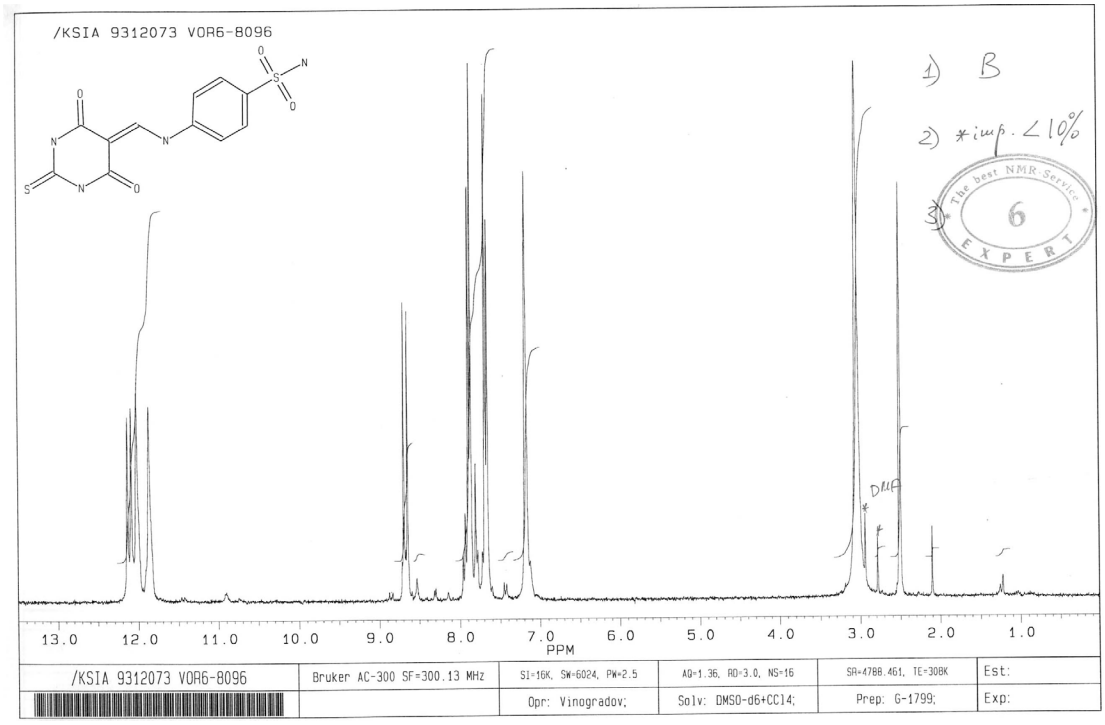
**2.$^1$H-NMR spectra of compounds 2-20**

Compound **2**

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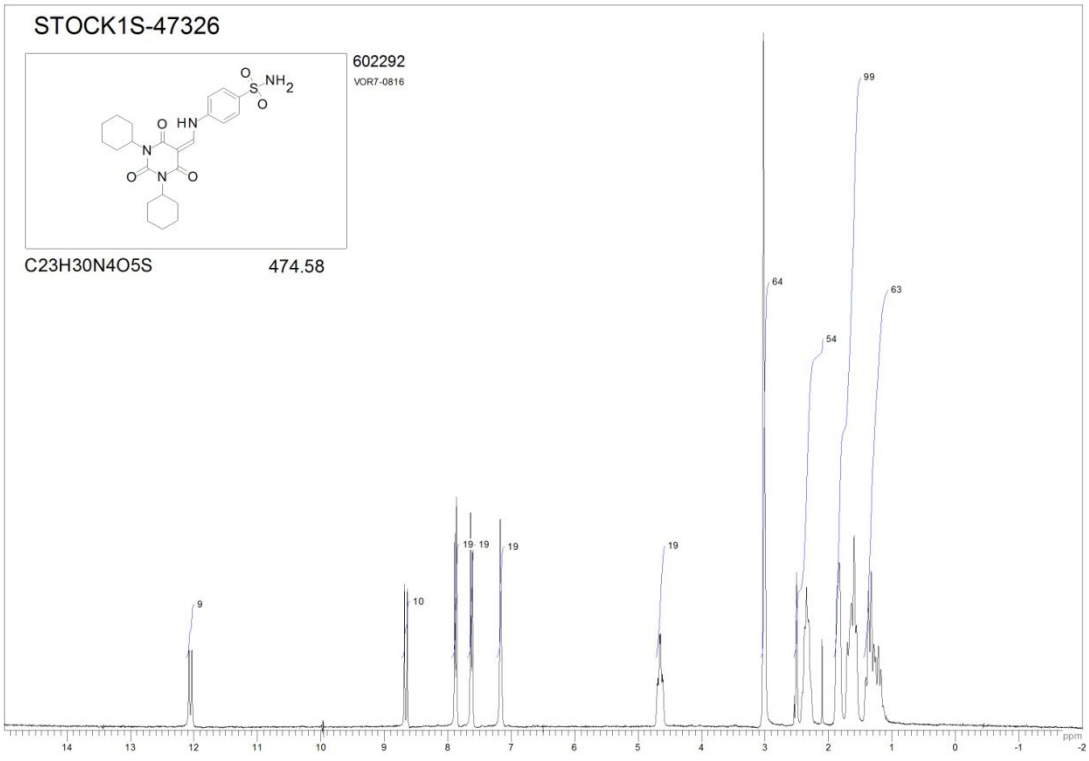
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VOR7-0816
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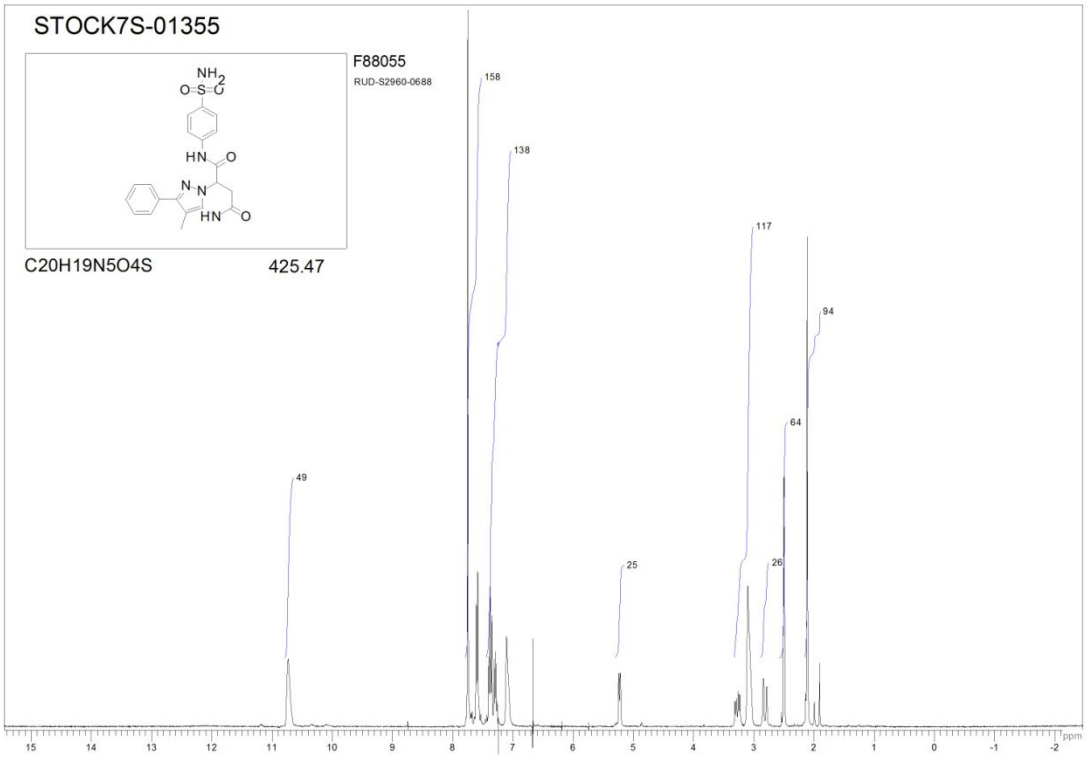
19
19
19
10
9
ppm

Compound **4**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F88055
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26
ppm

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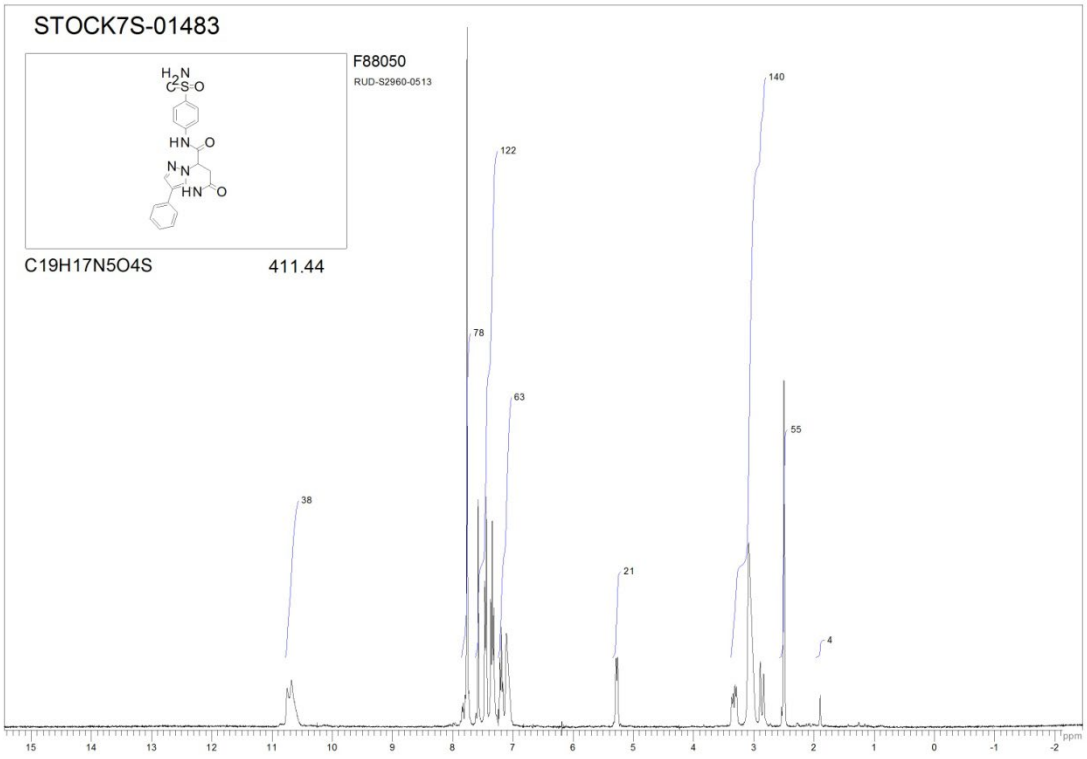
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55
38
21
4
ppm

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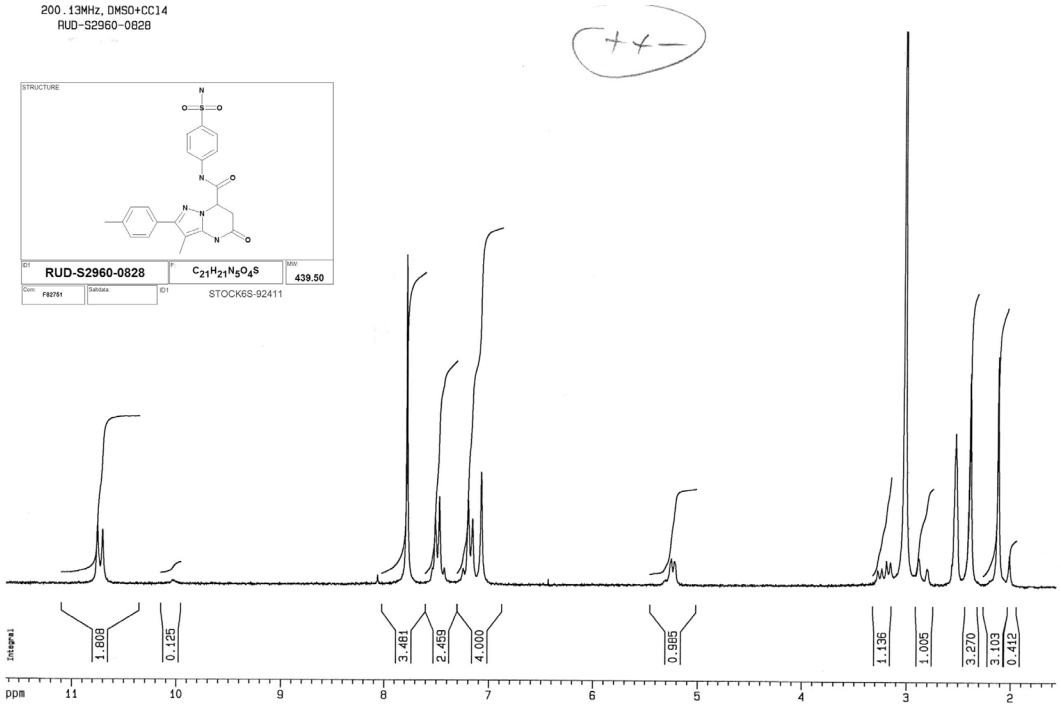


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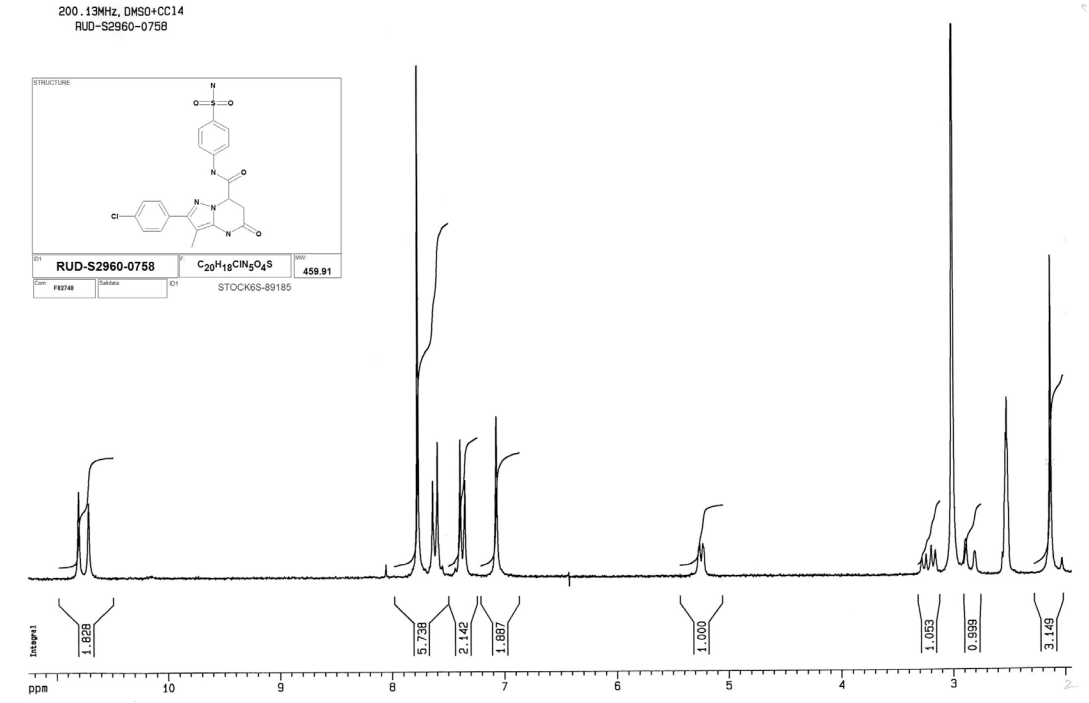
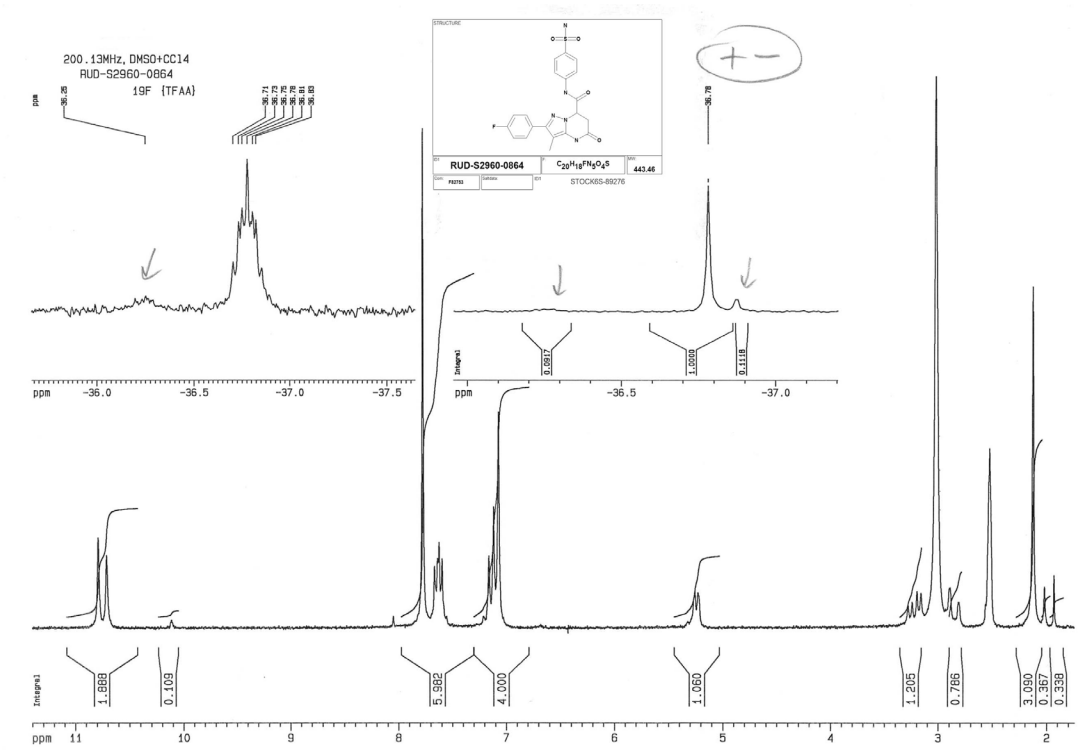


Compound 8

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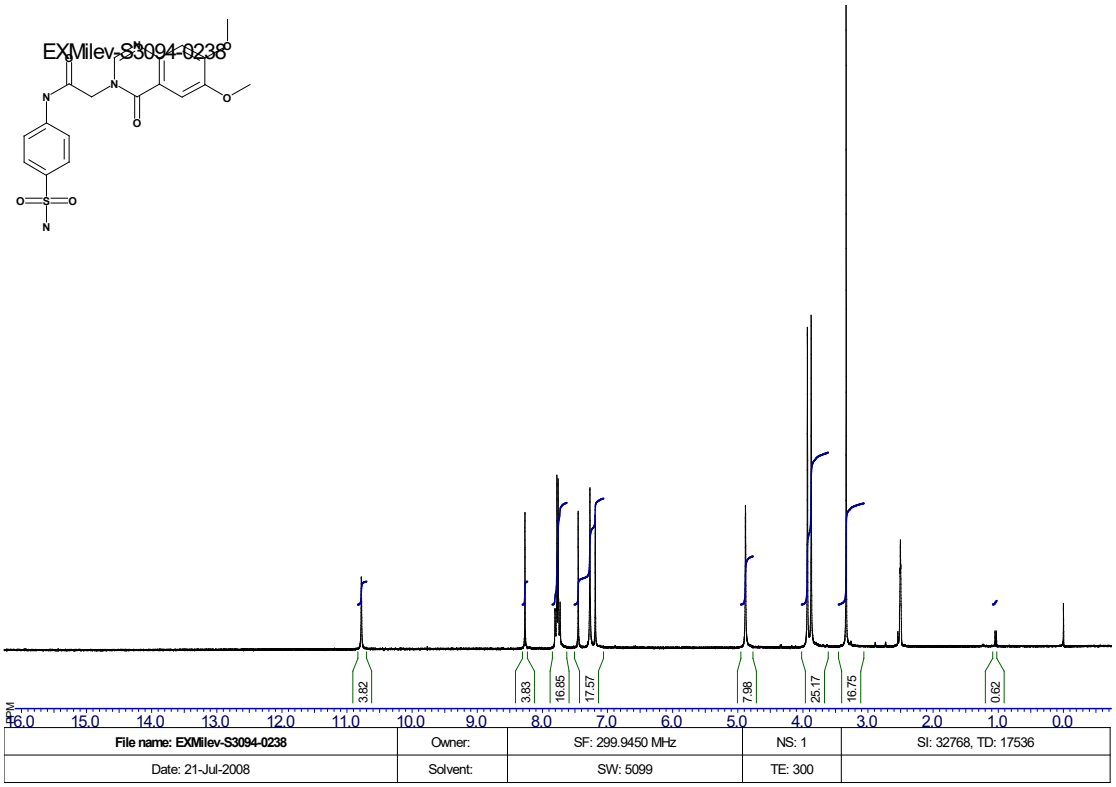


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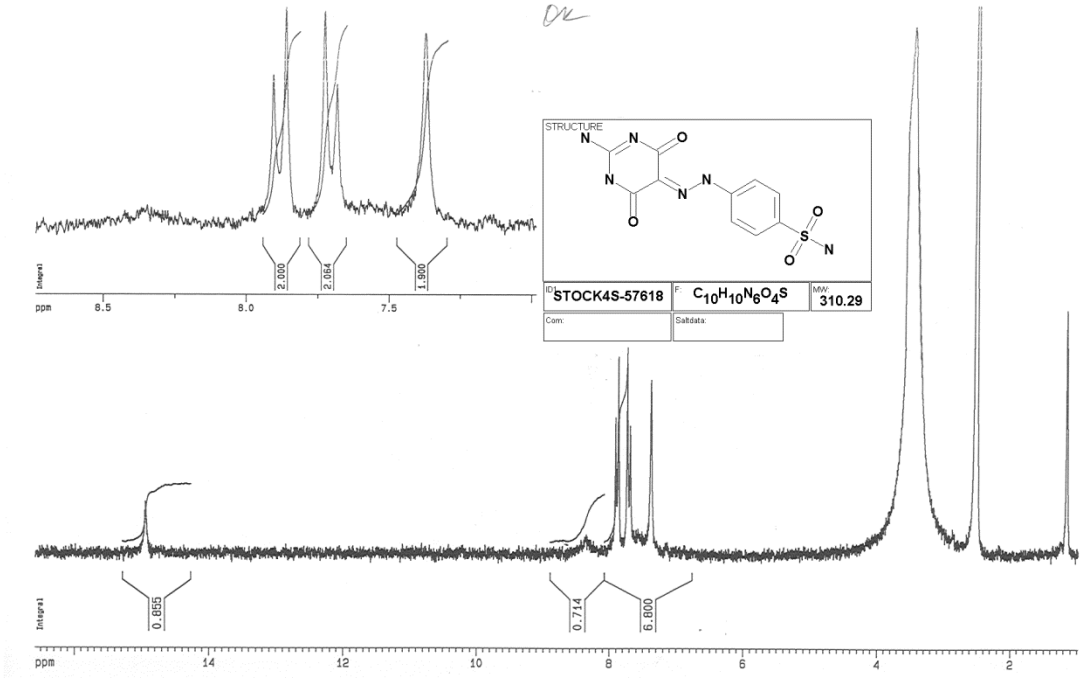

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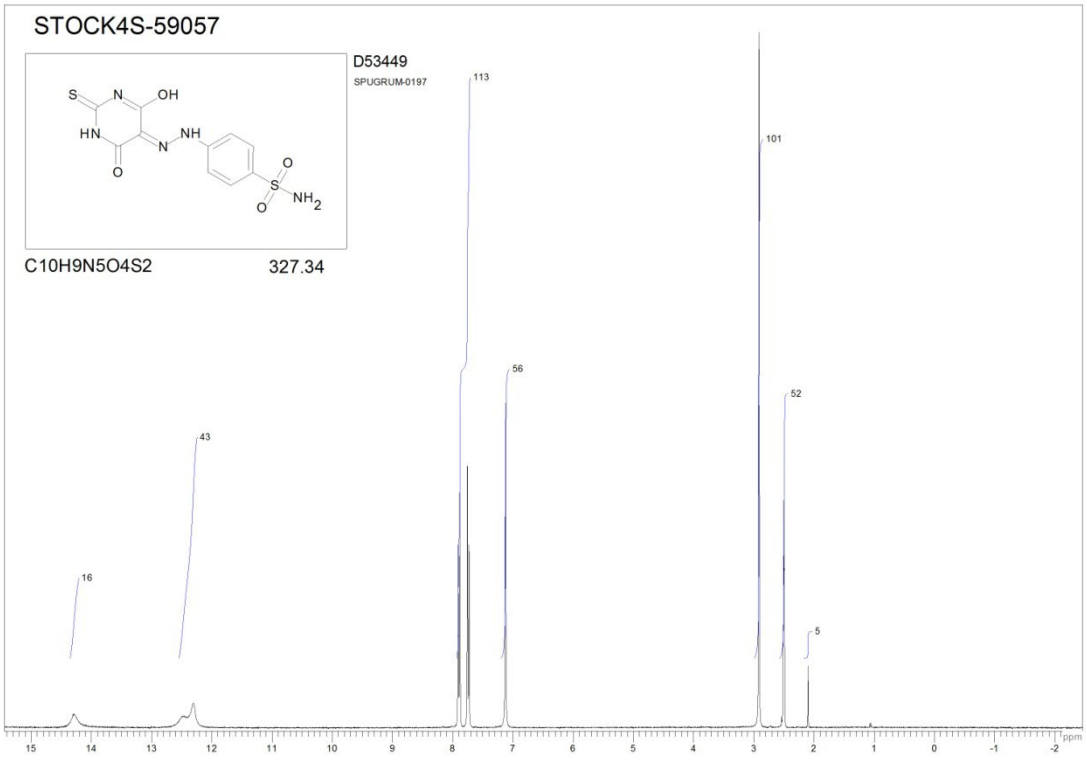


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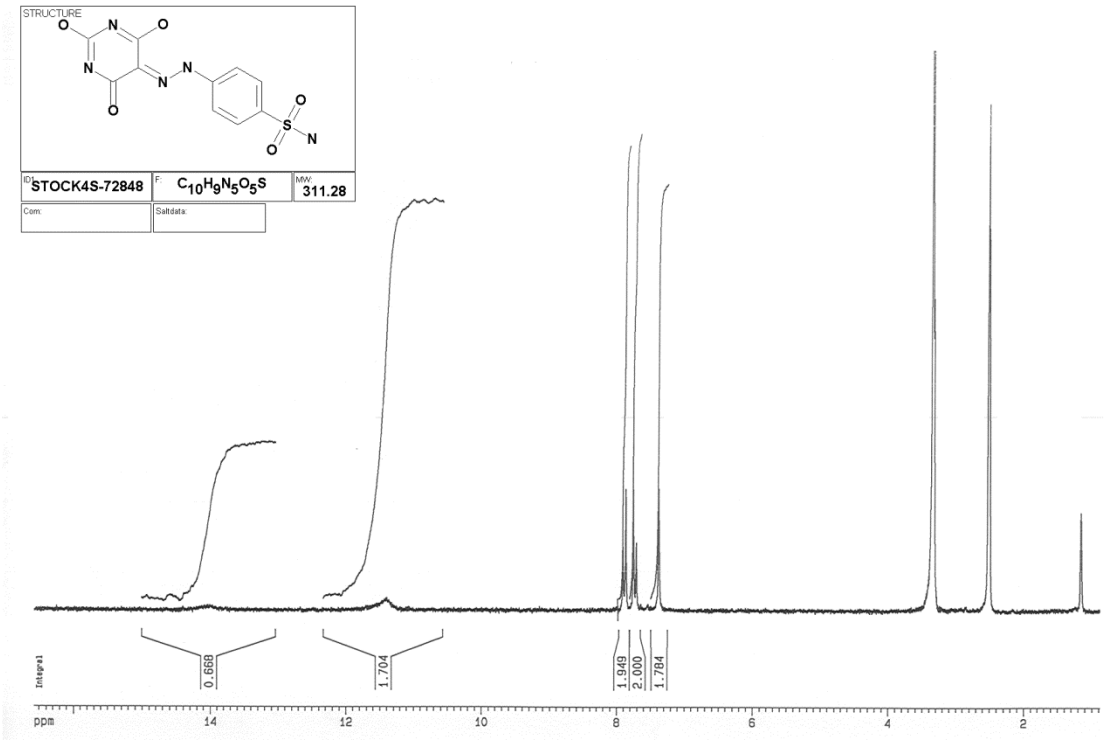
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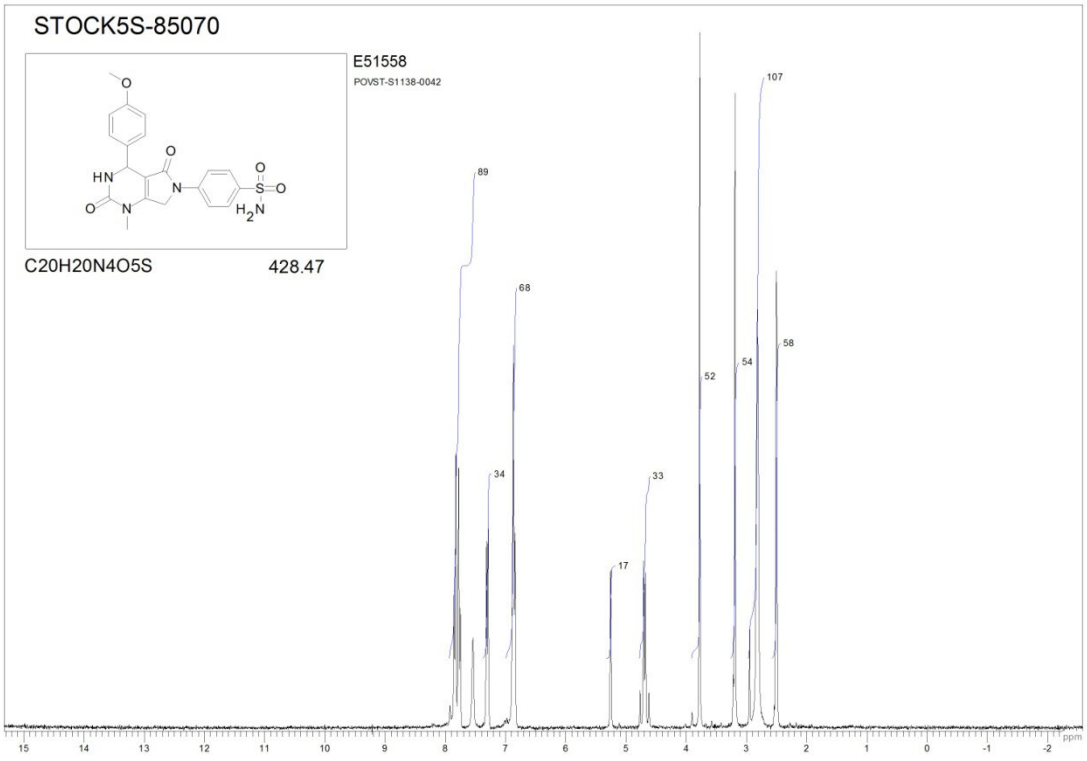
8
6
4
2

Compound **13**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E51558
POVST-S1138-0042
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33
17
ppm

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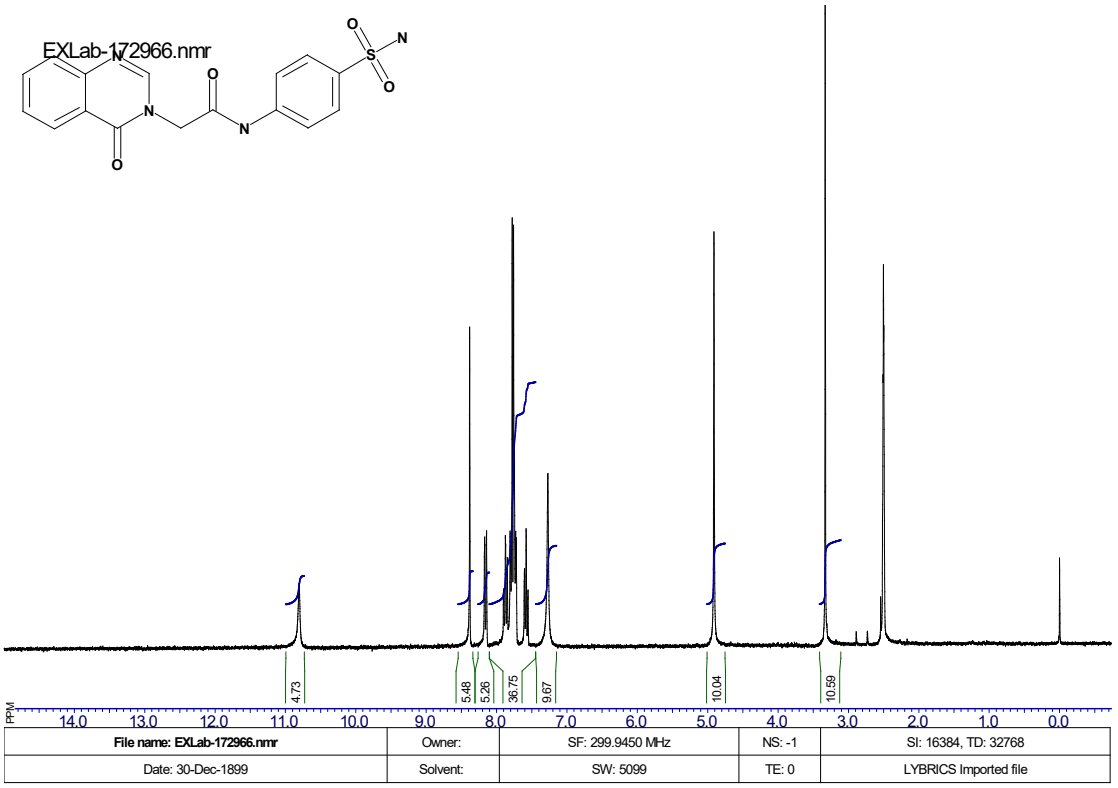


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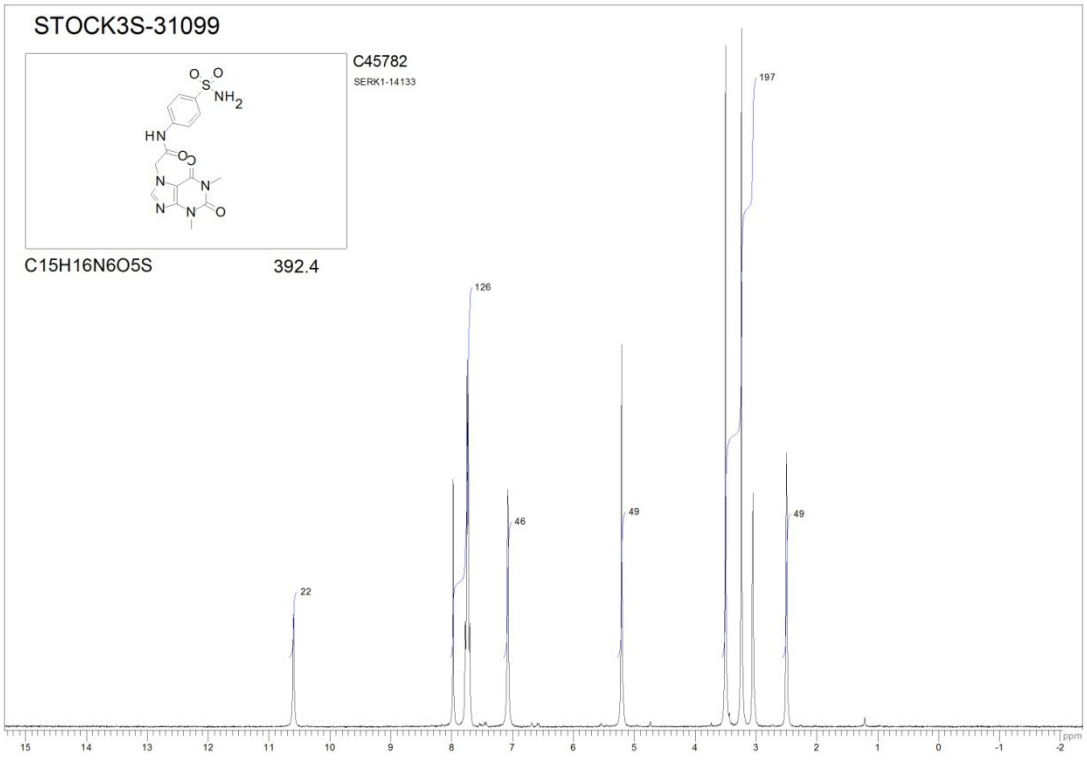
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46
49
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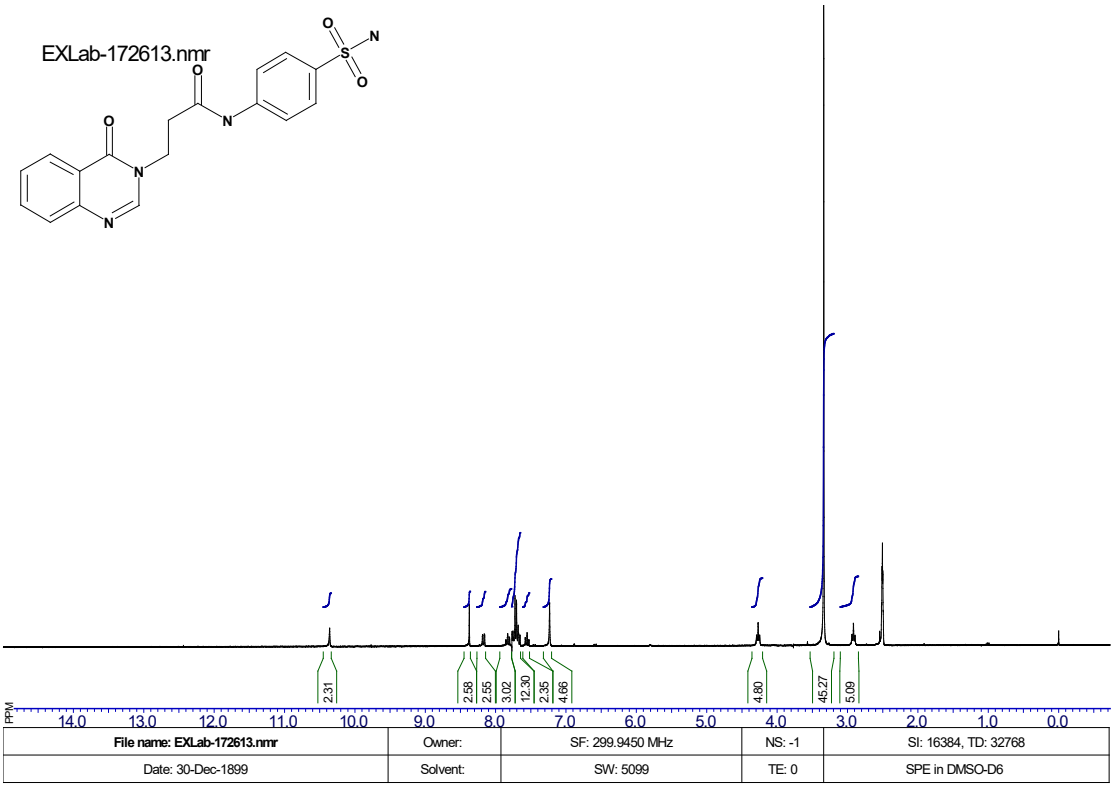
197
ppm

Compound **16**

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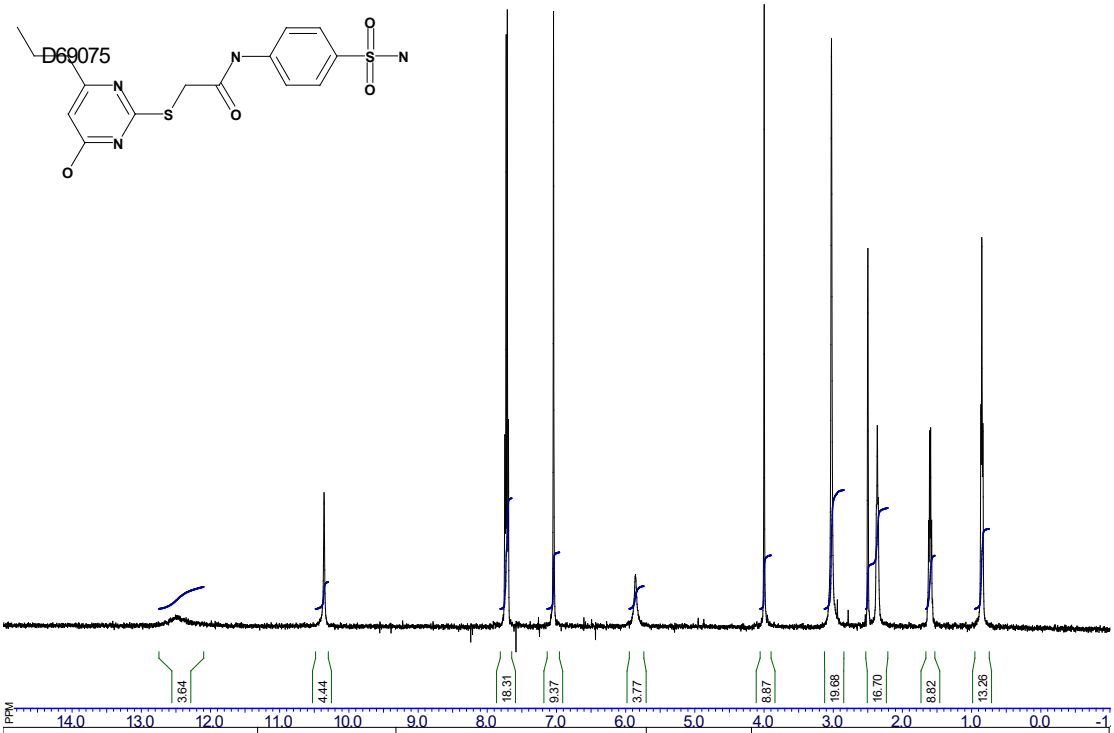
Compound **17**

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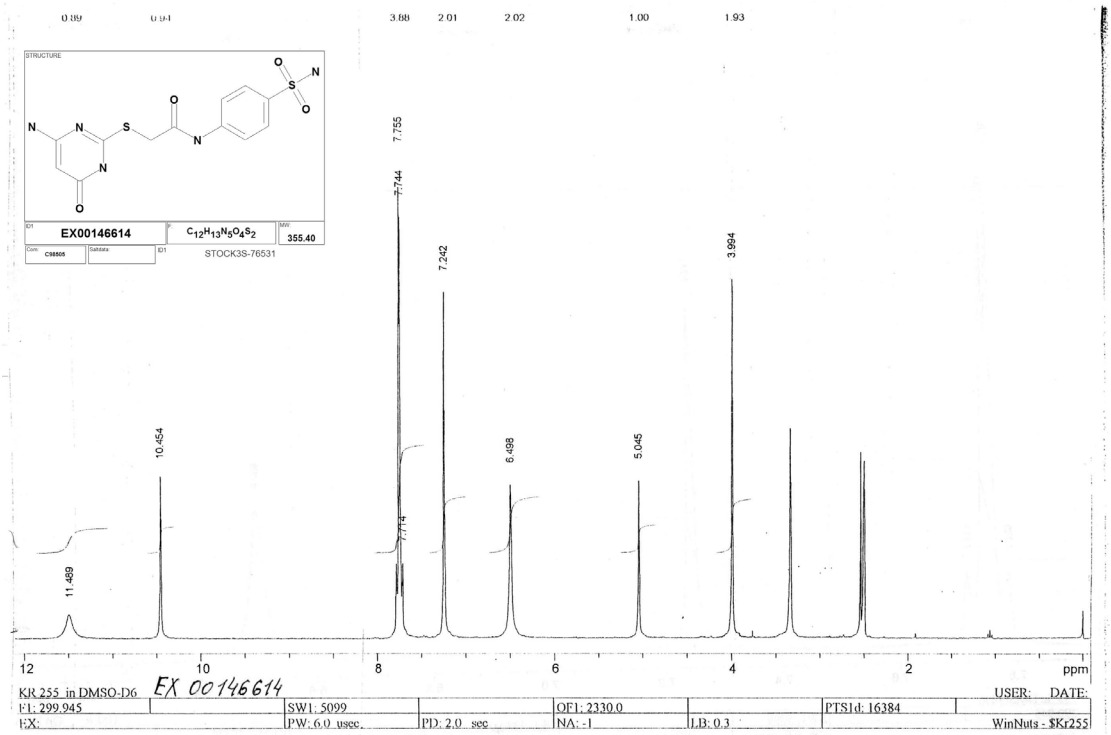


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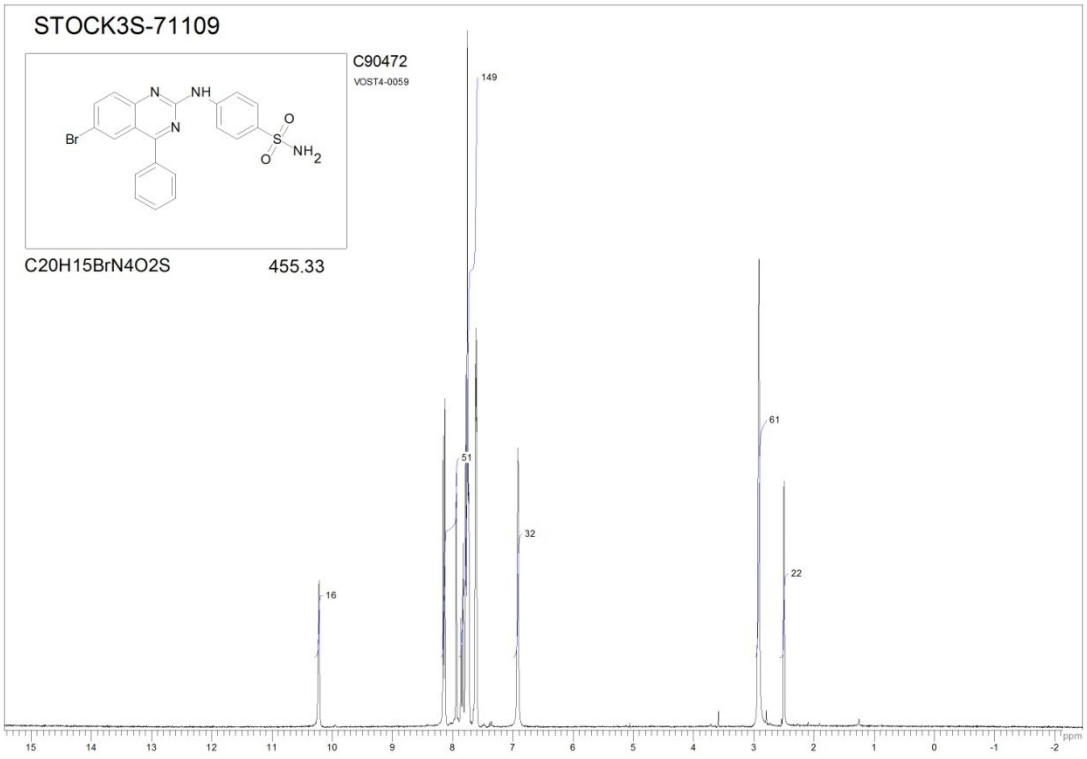


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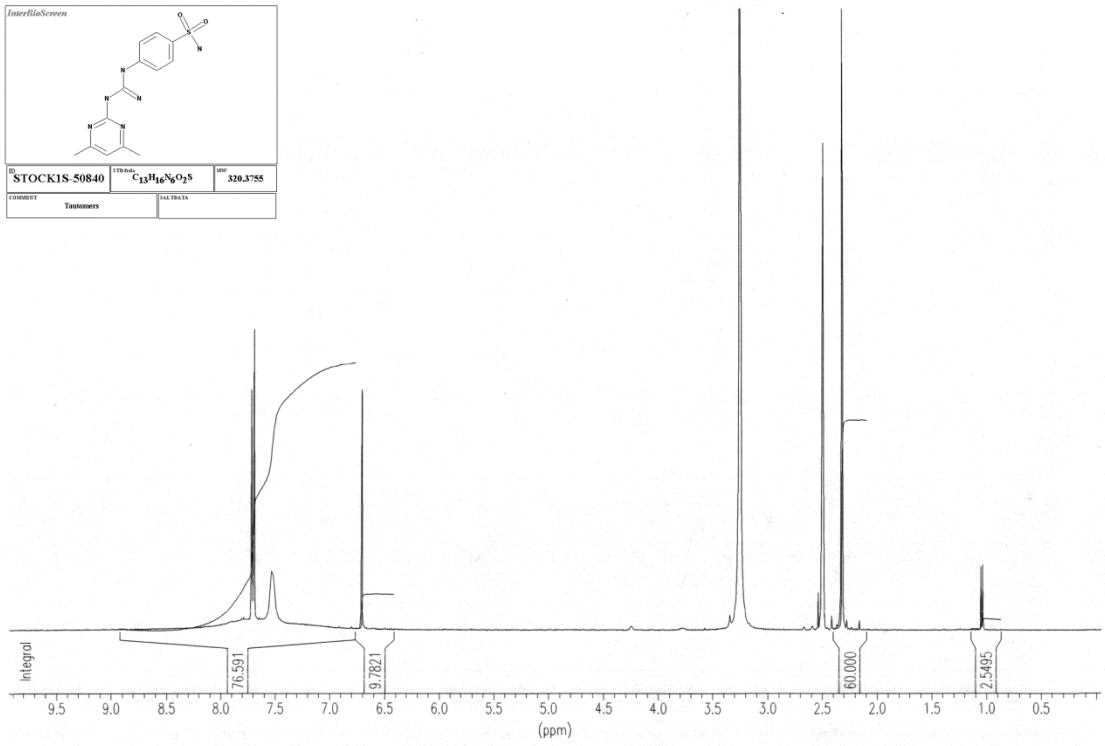
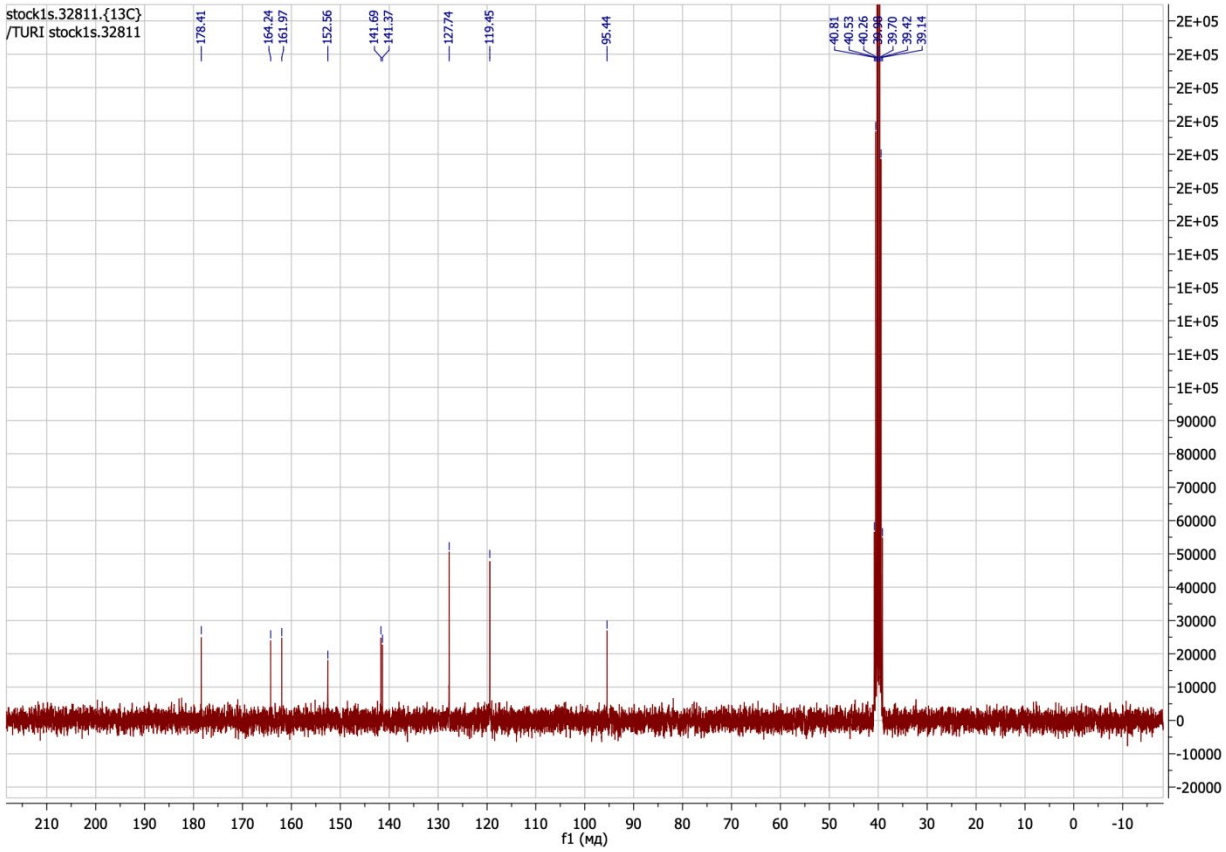
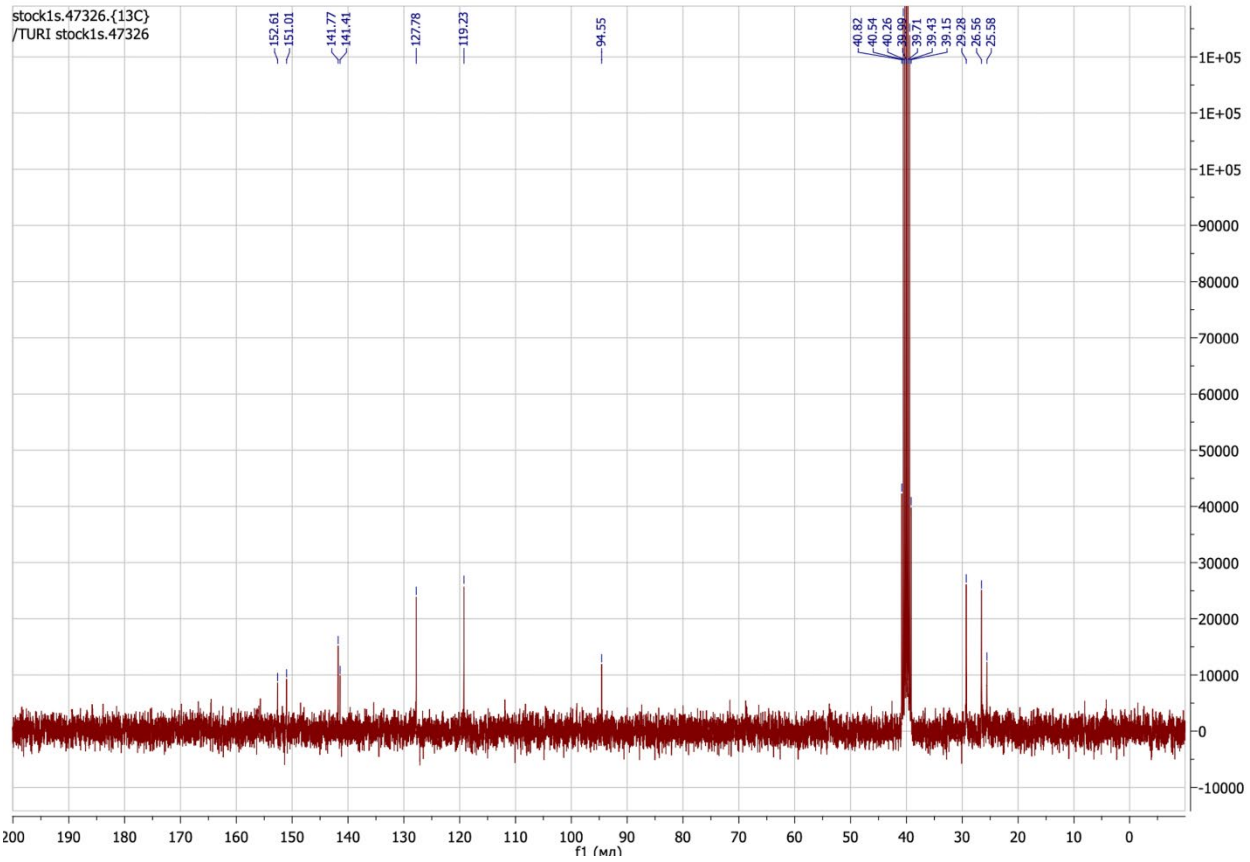



**$^{13}$C-NMR spectra of compounds 2,3**

**$^{13}$C-NMR spectrum of *4-[[(tetrahydro-4,6-dioxo-2-thioxo-5(2H)-pyrimidinylidene)methyl]amino]benzenesulfonamide* (2)**




**$^{13}$C-NMR spectrum of *4-{[(1,3-Dicyclohexyl-2,4,6-trioxotetrahydro-5(2H)-pyrimidinylidene)methyl]amino}benzenesulfonamide (3)***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127.78
119.23
94.55
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39.43
39.15
29.28
26.56
25.58
1E+05
1E+05
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90000
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70000
60000
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40000
30000
20000
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