

Article

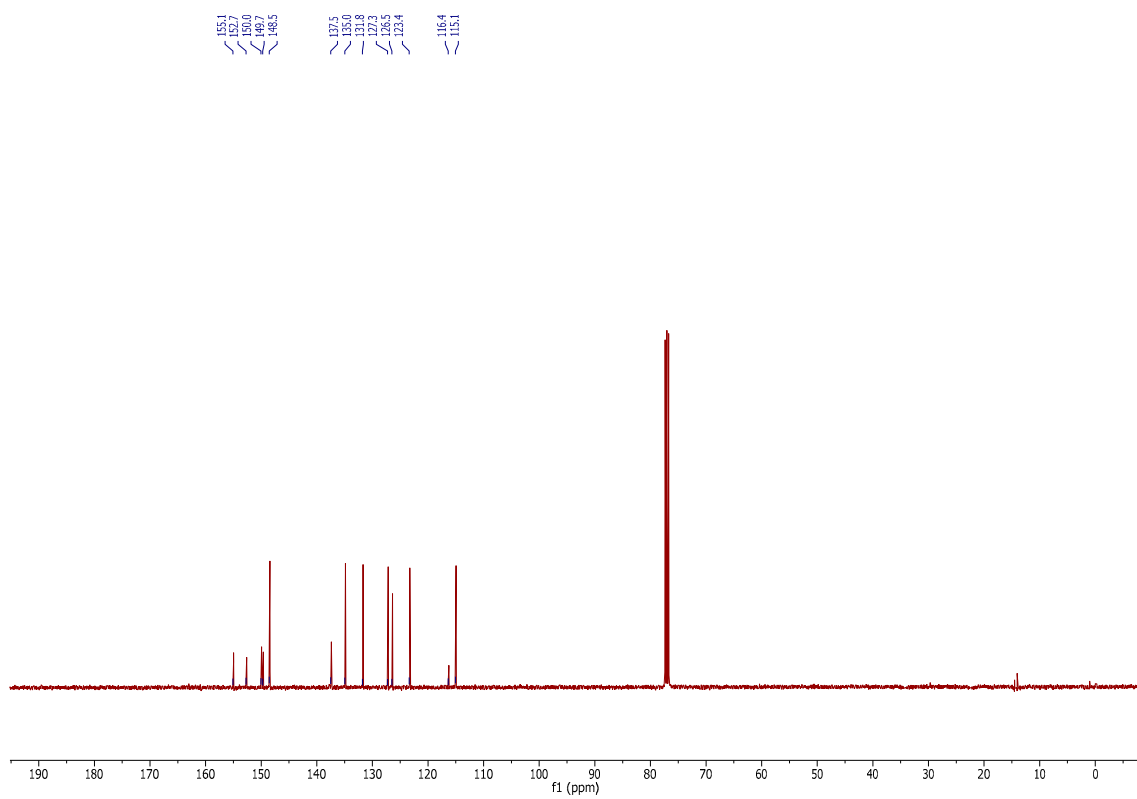
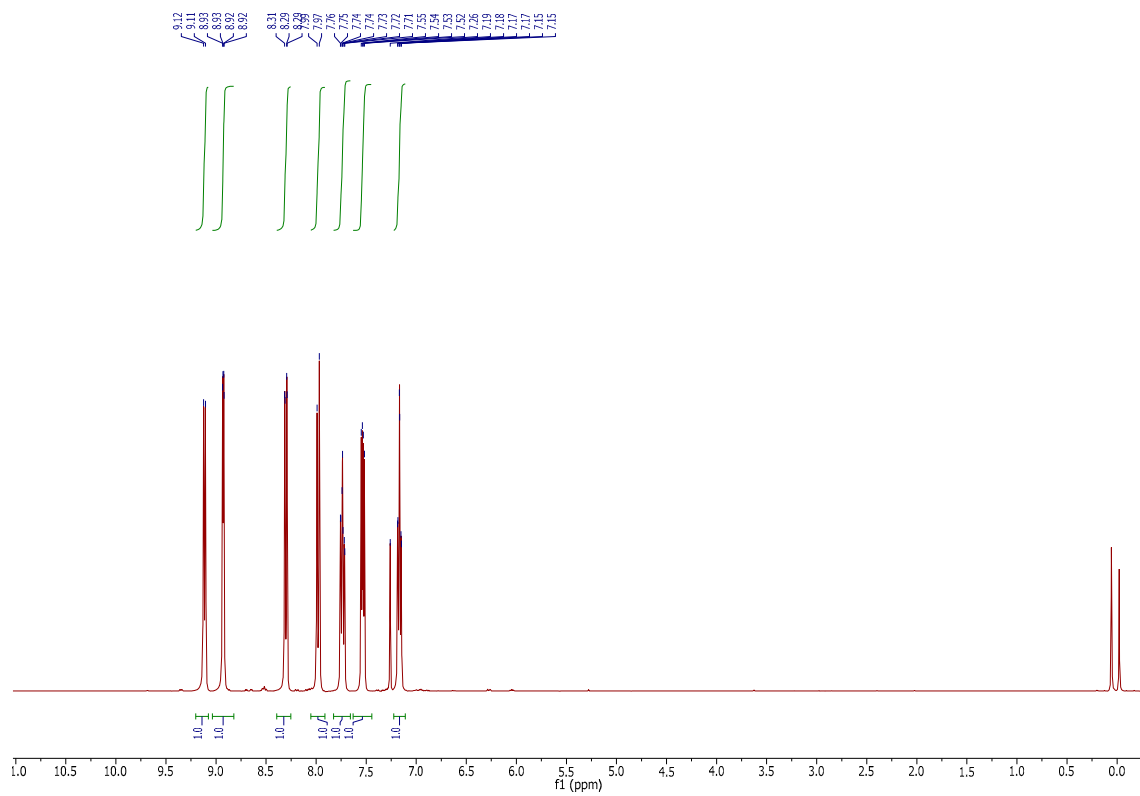
# First Metal-Free Synthesis of Tetracyclic Pyrido and Pyrazino Thienopyrimidinone Molecules

Mohammed Aounzou, Joana F. Campos, Mohammed Loubidi and Sabine Berteina-Raboin\*

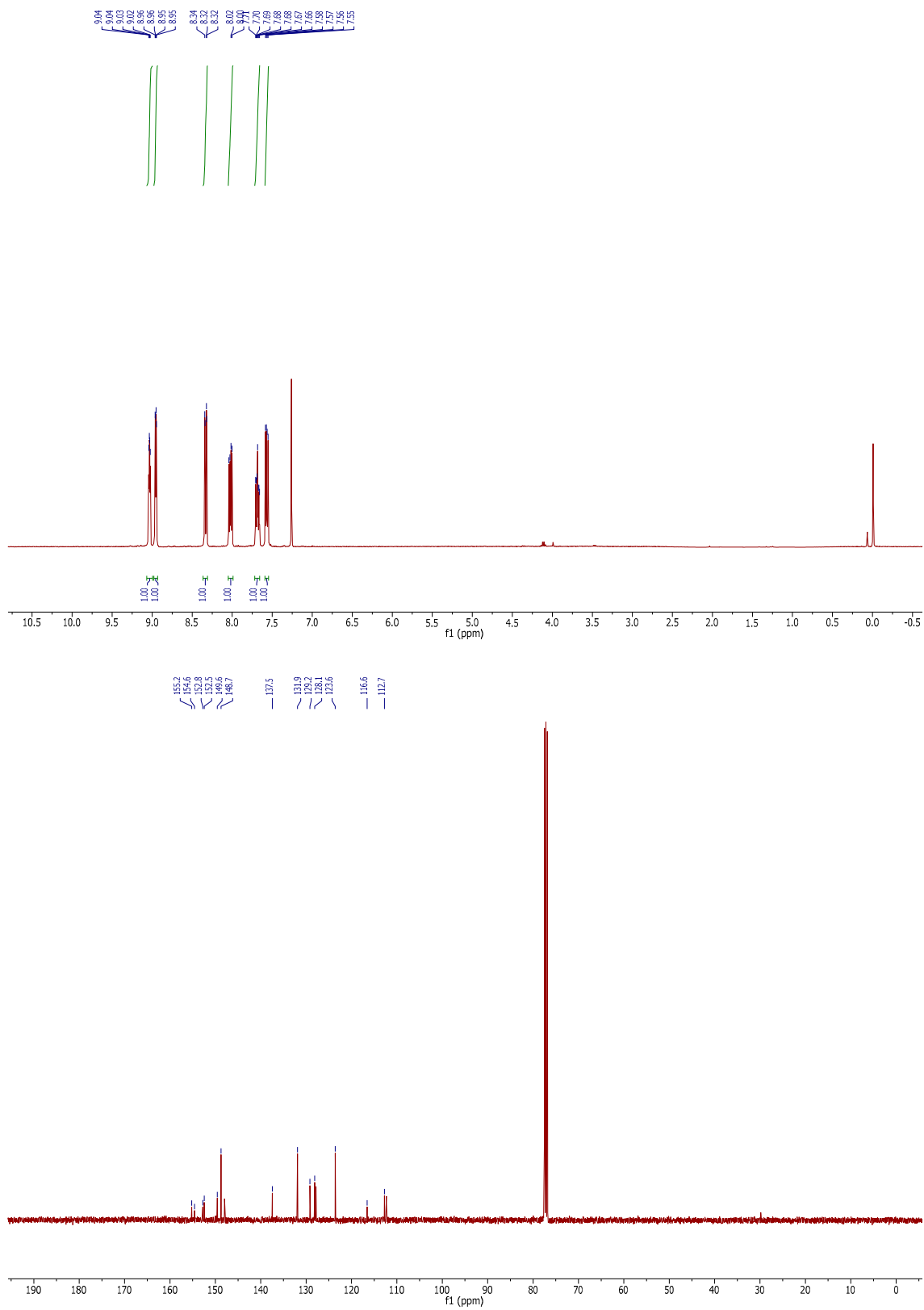
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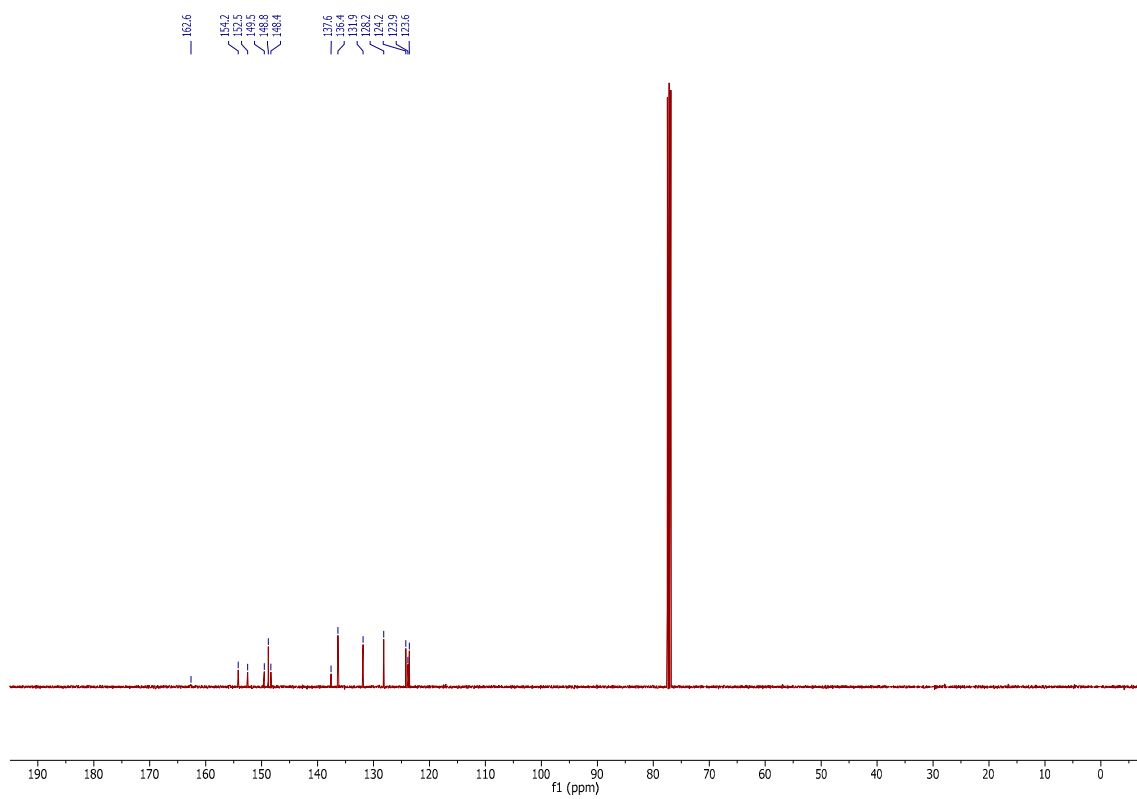
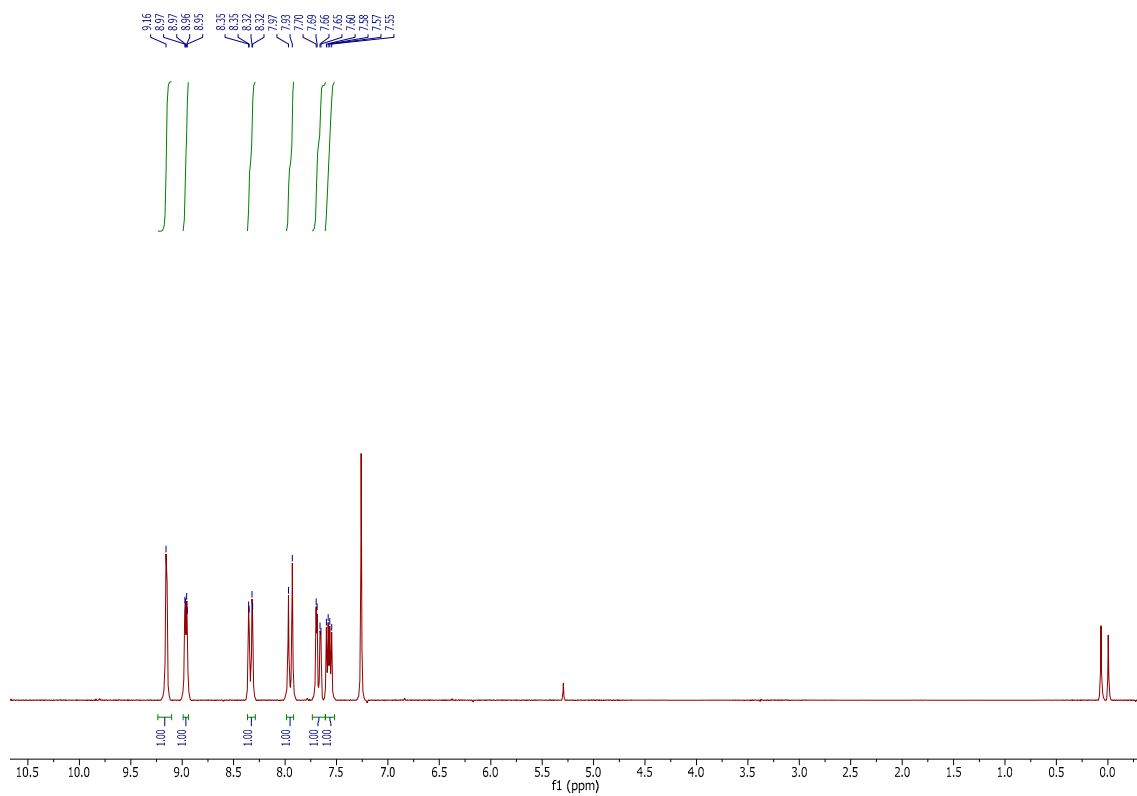
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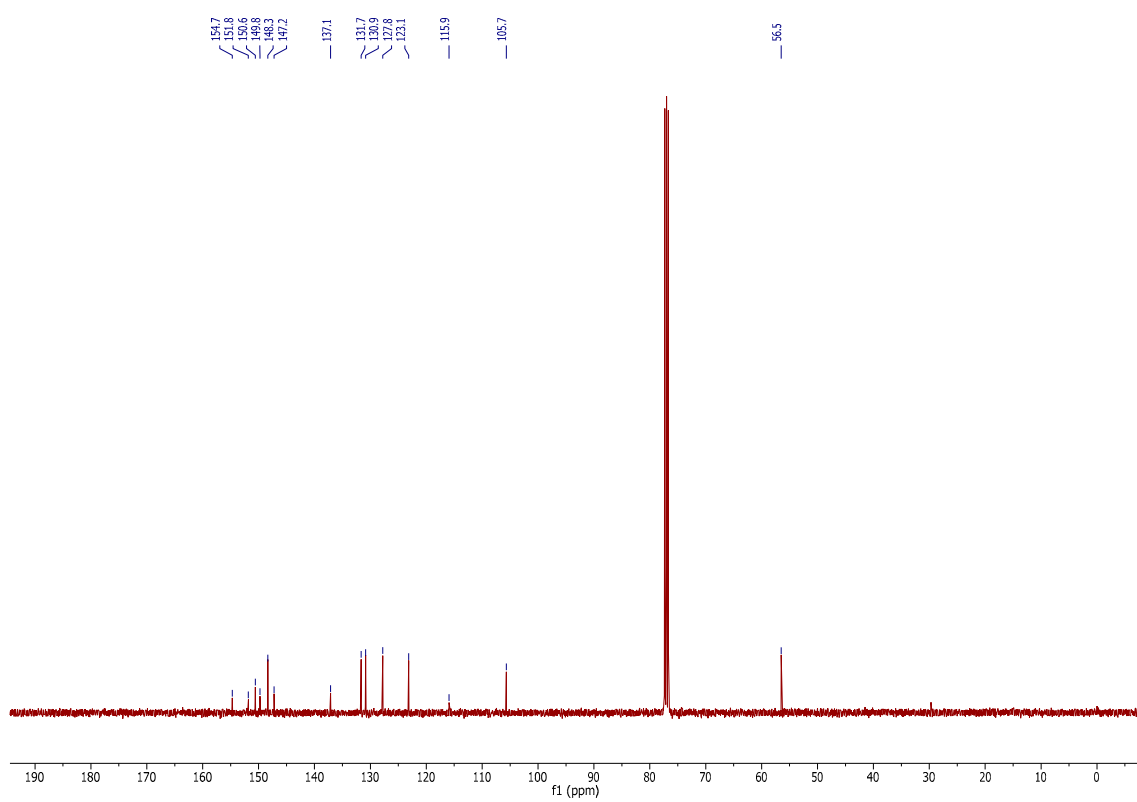
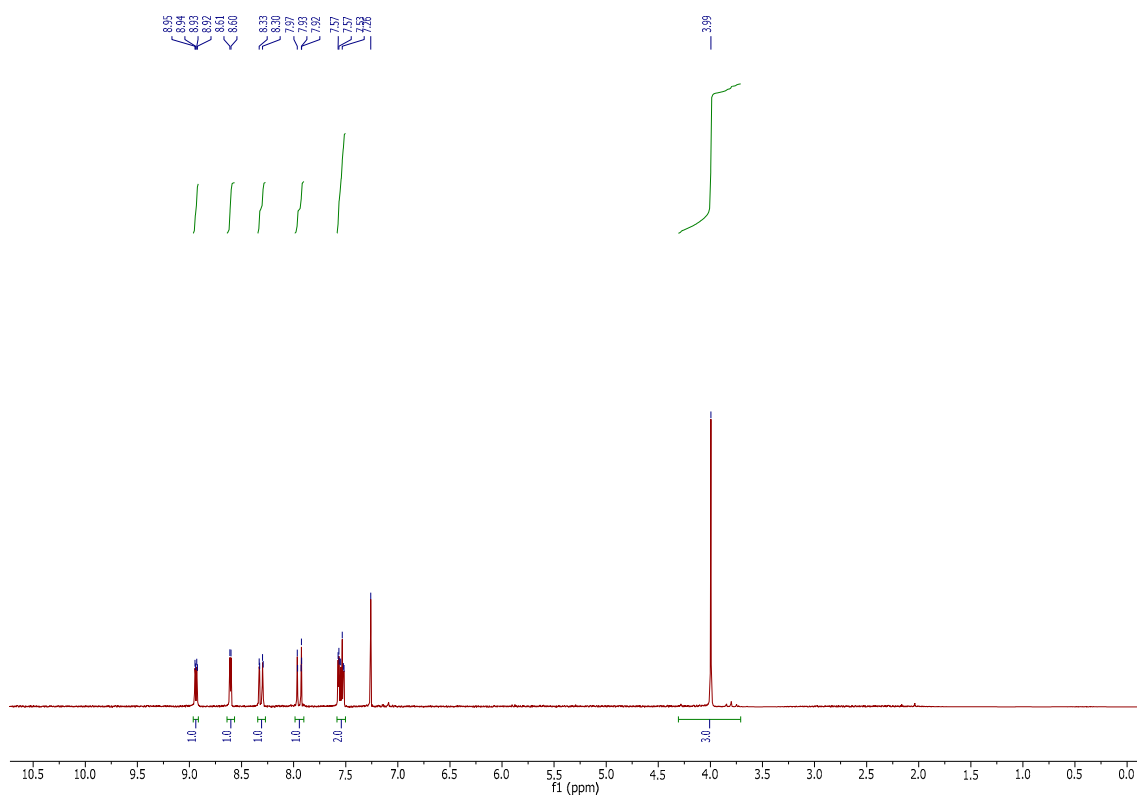
**6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (2)**

## 9-fluoro-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (3)

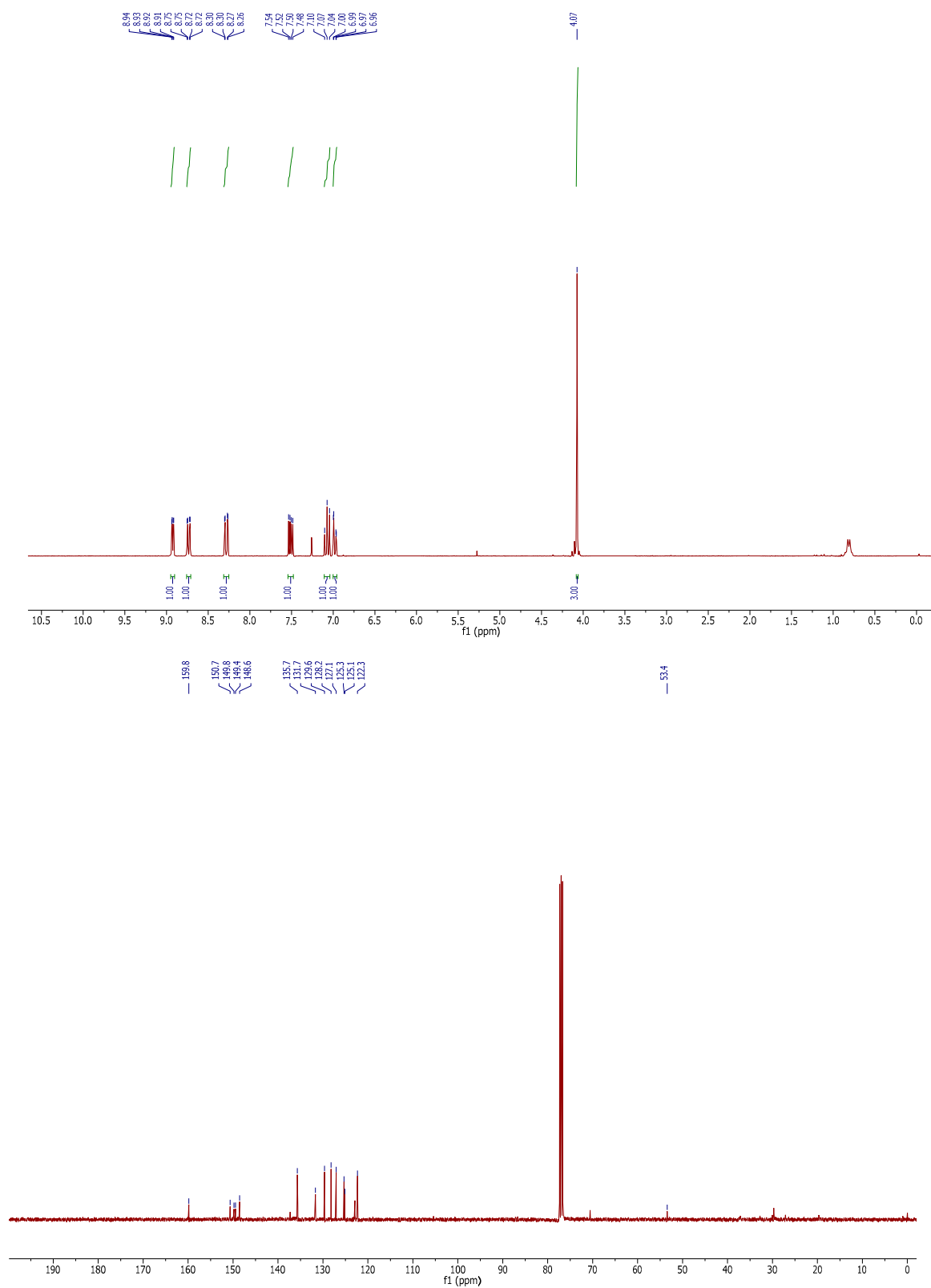


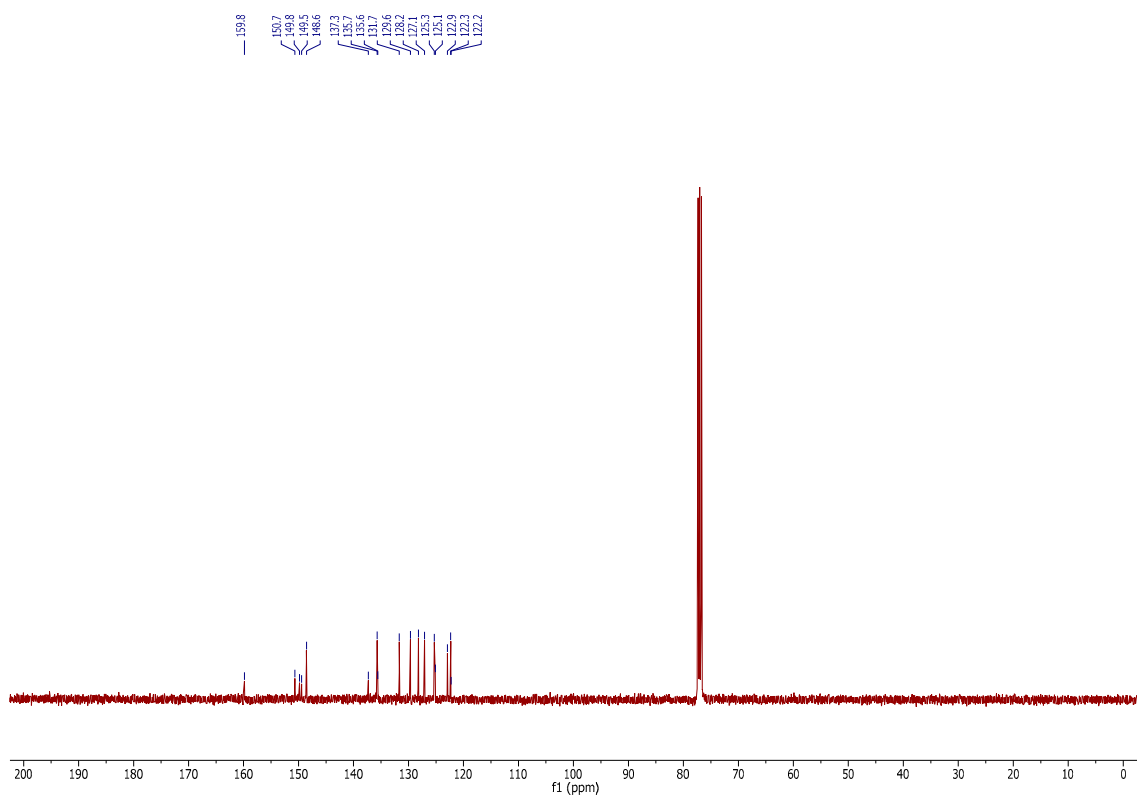
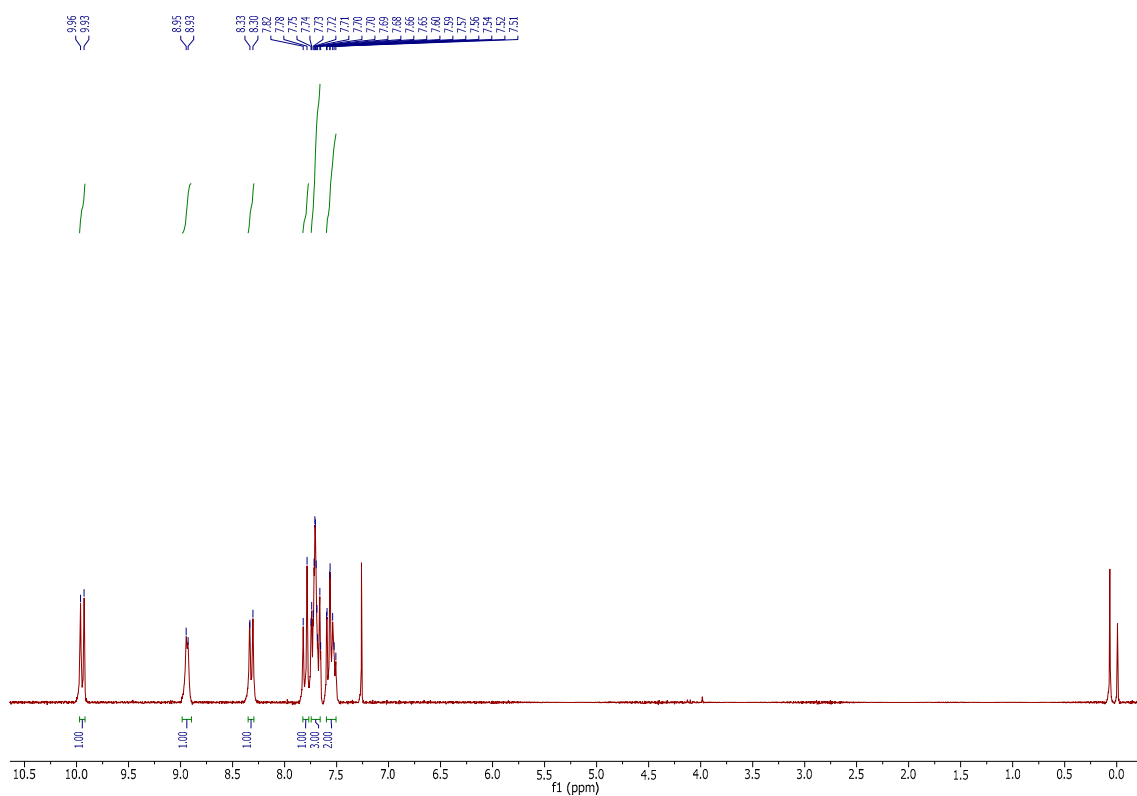
## 9-chloro-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (4)



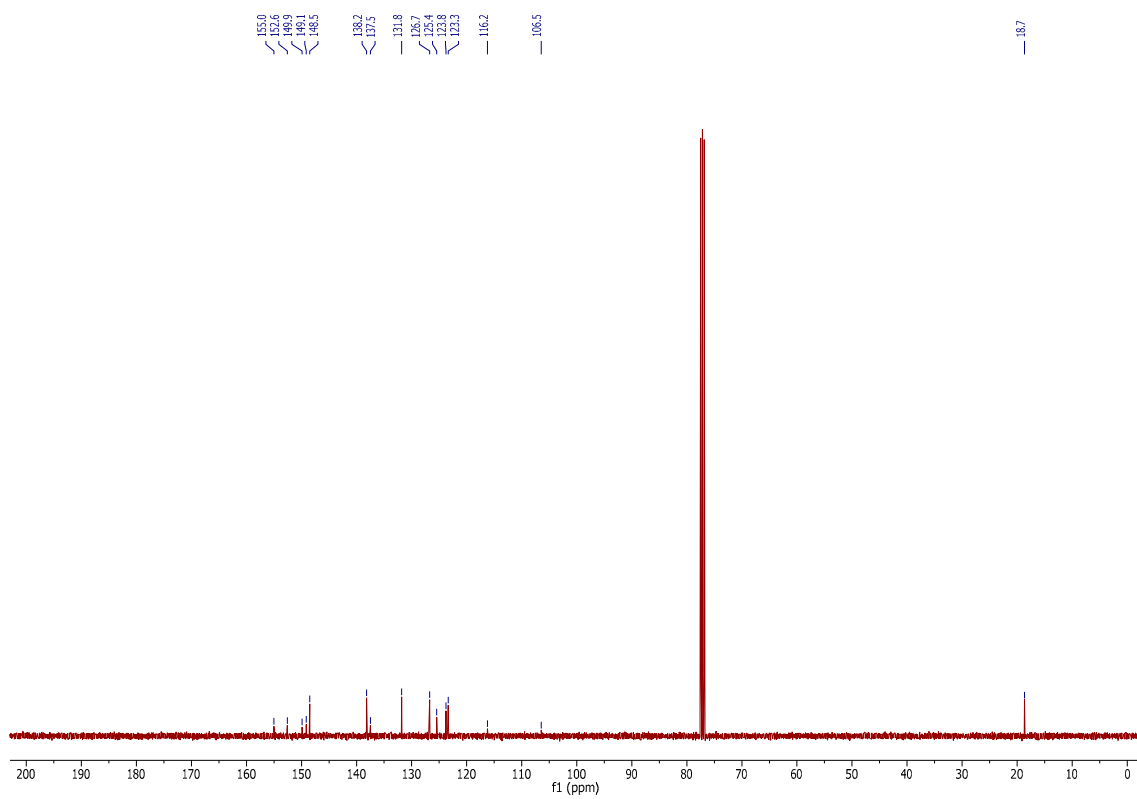
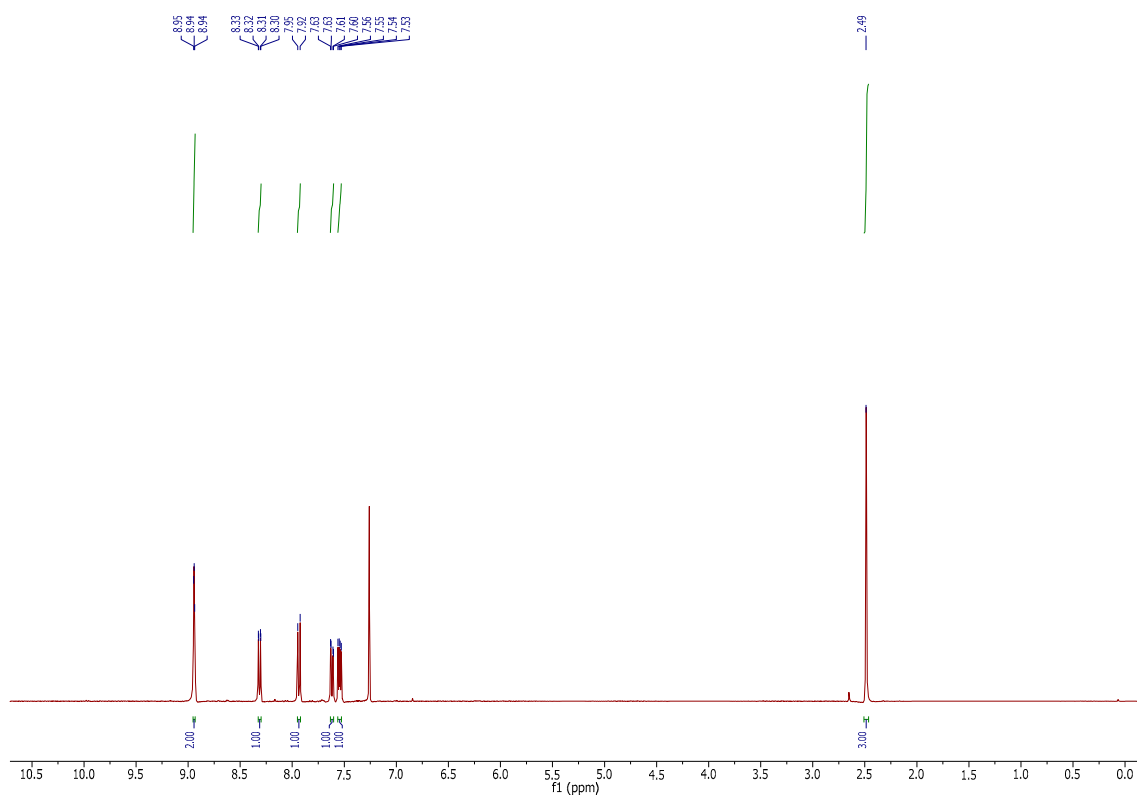
**9-methoxy-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (5)**

## 11-methoxy-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (6)

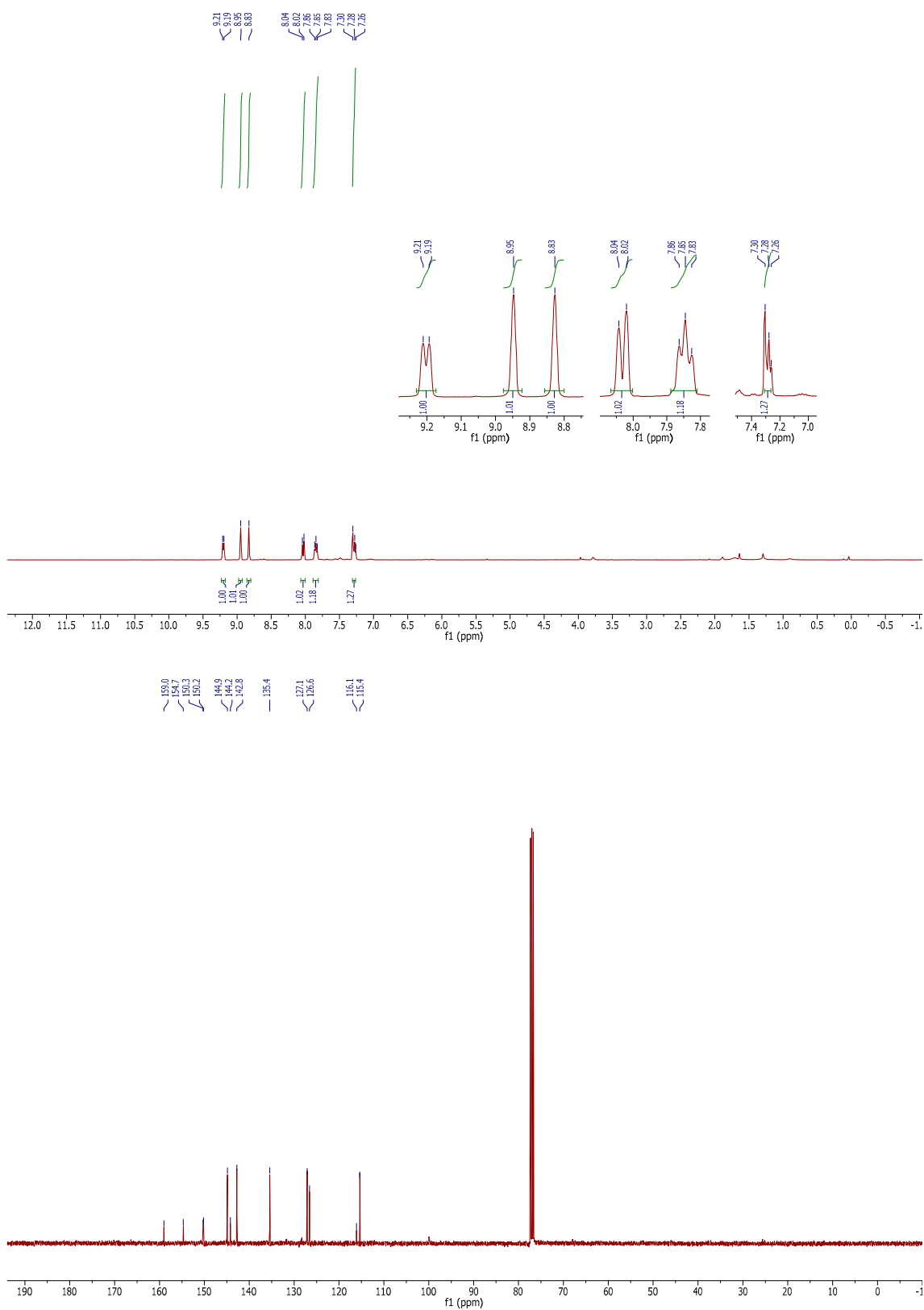


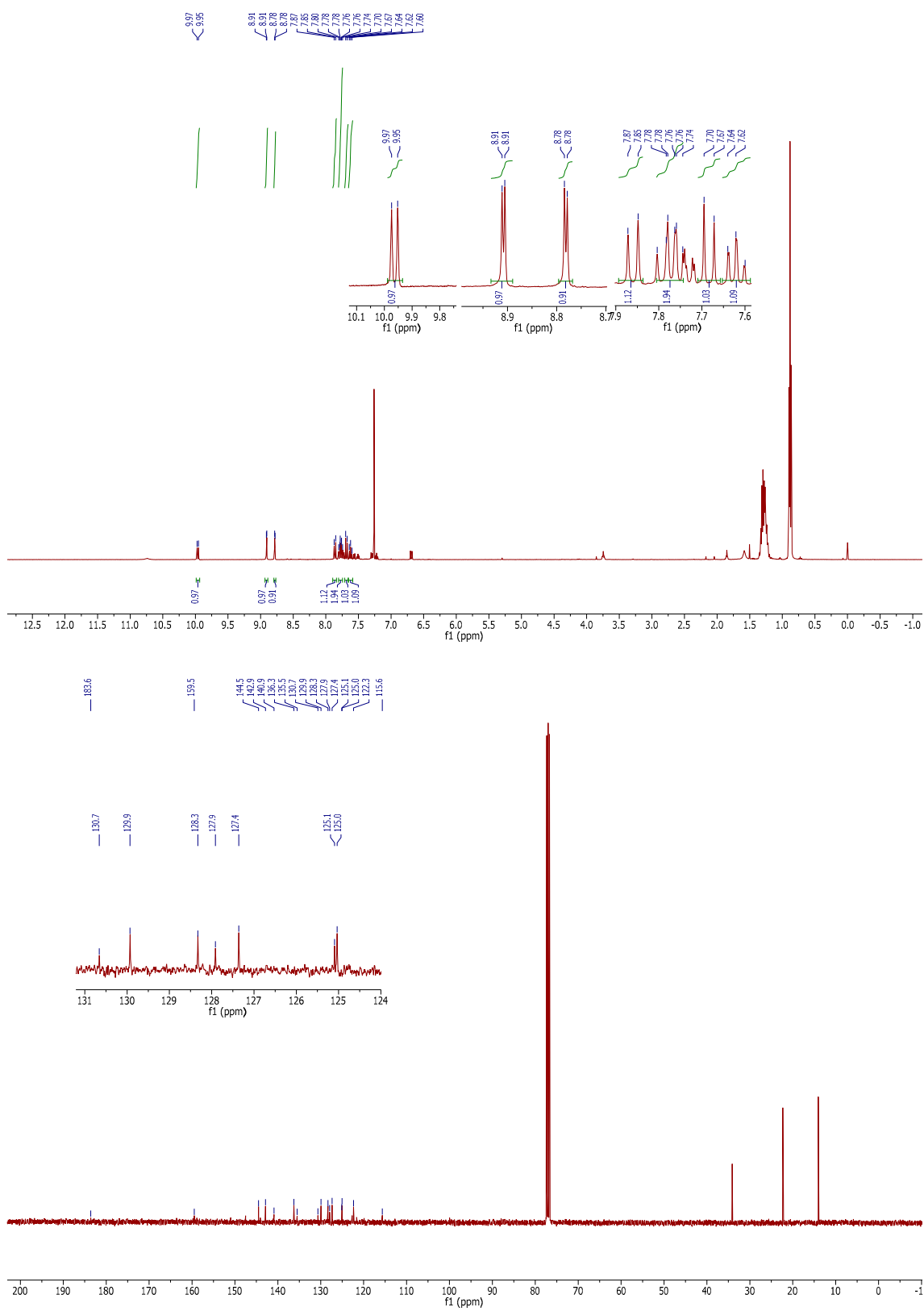
**$^{13}\text{H}$ -pyrido[2''',3''':4',5']thieno[3',2':4,5]pyrimido[1,2-*a*]quinolin-13-one (7)**

## 9-methyl-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (8)

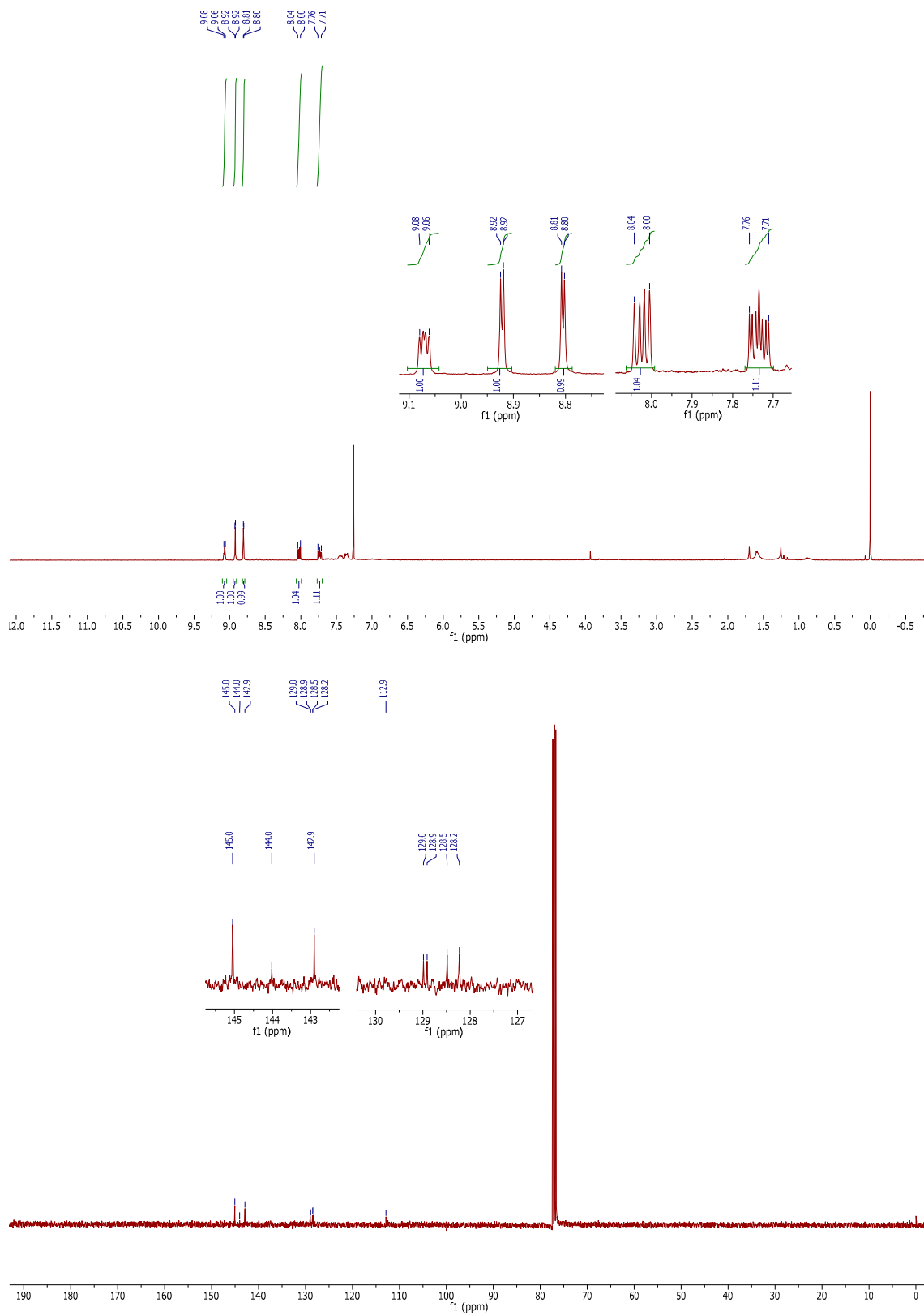




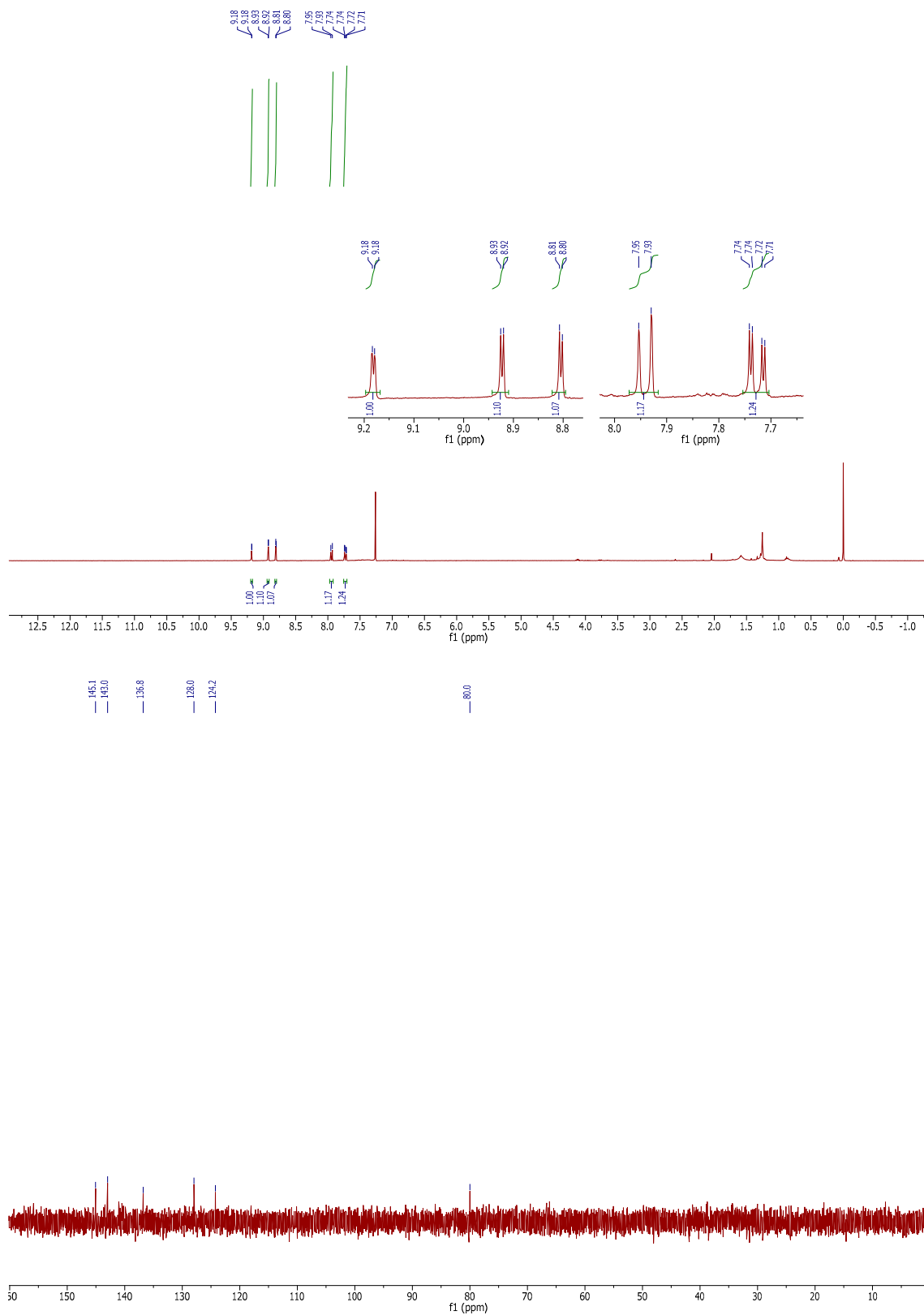
**6H-pyrazino[2',3':4,5]thieno[3,2-d]pyrido[1,2-a]pyrimidin-6-one (10)**

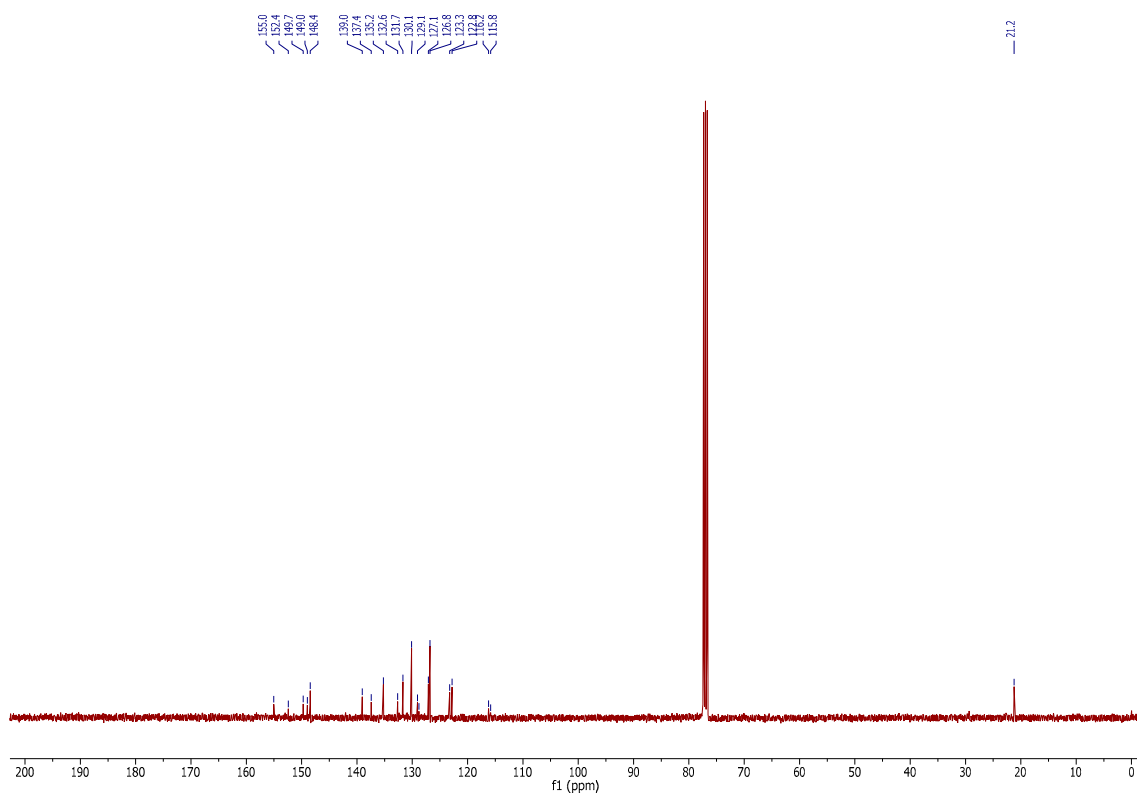
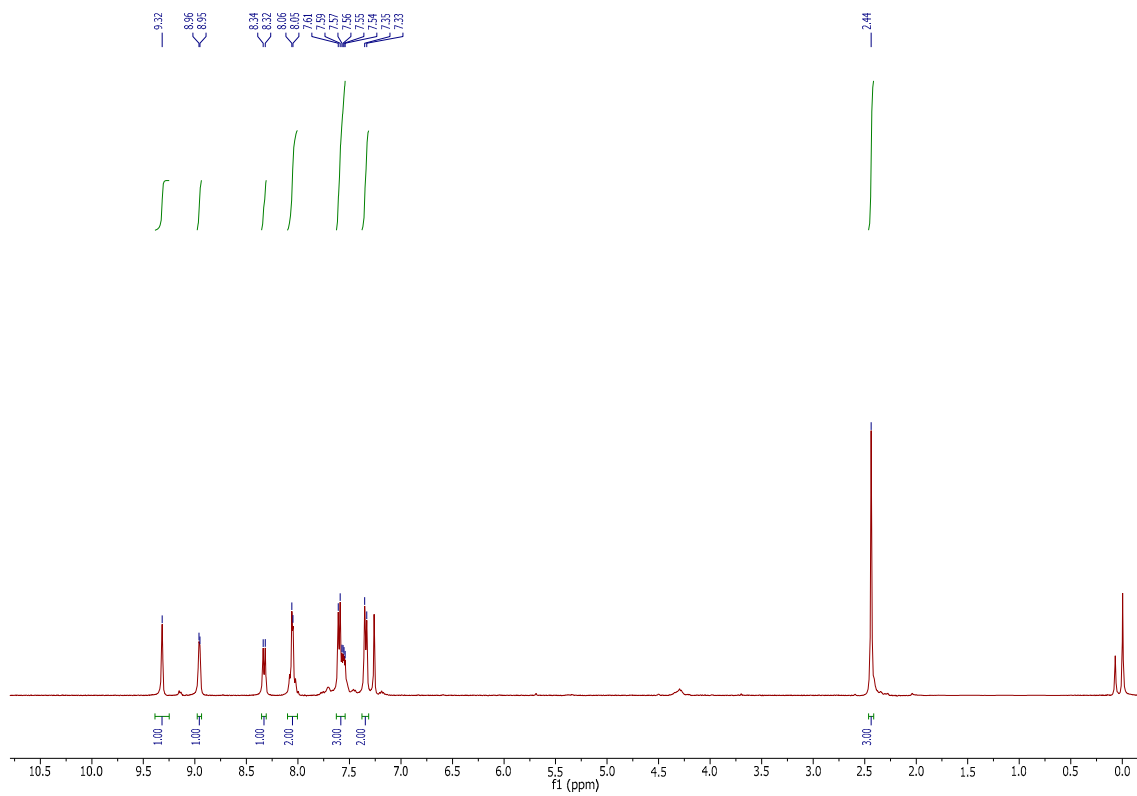
**13H-pyrazino[2''',3':4',5']thieno[3',2':4,5]pyrimido[1,2-a]quinolin-13-one (11)**

## 9-fluoro-6H-pyrazino[2',3':4,5]thieno[3,2-d]pyrido[1,2-a]pyrimidin-6-one (12)

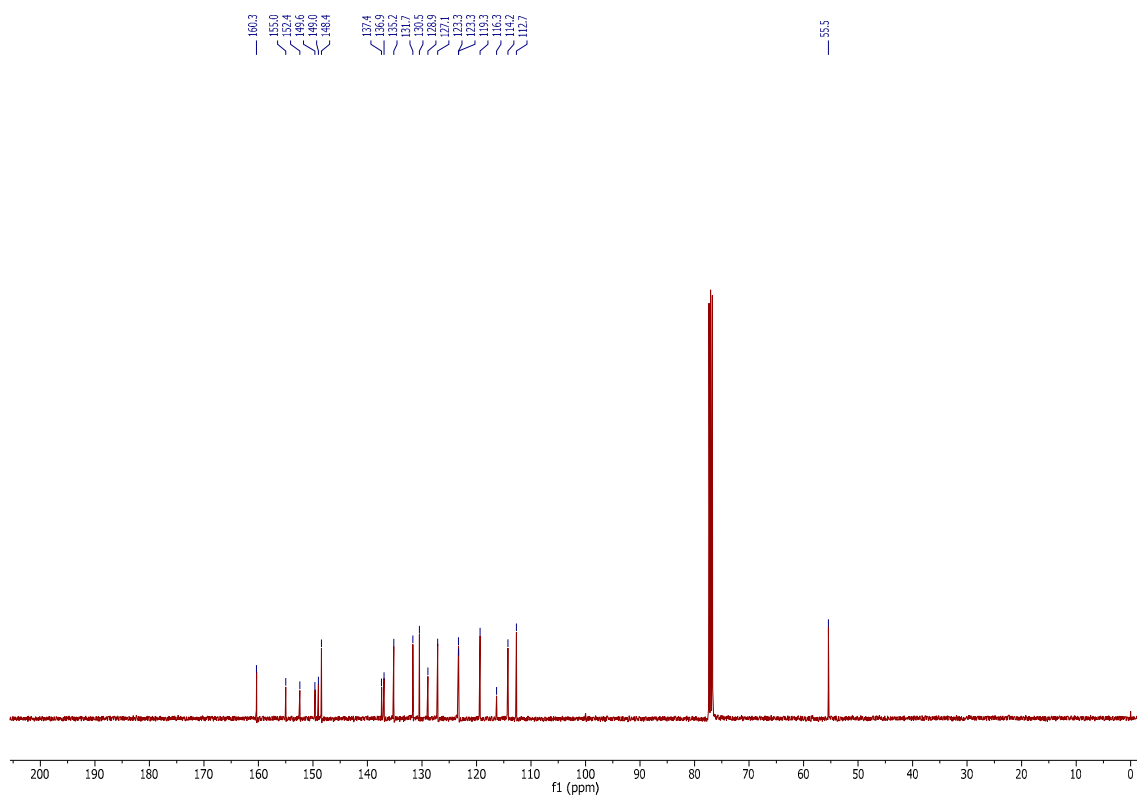
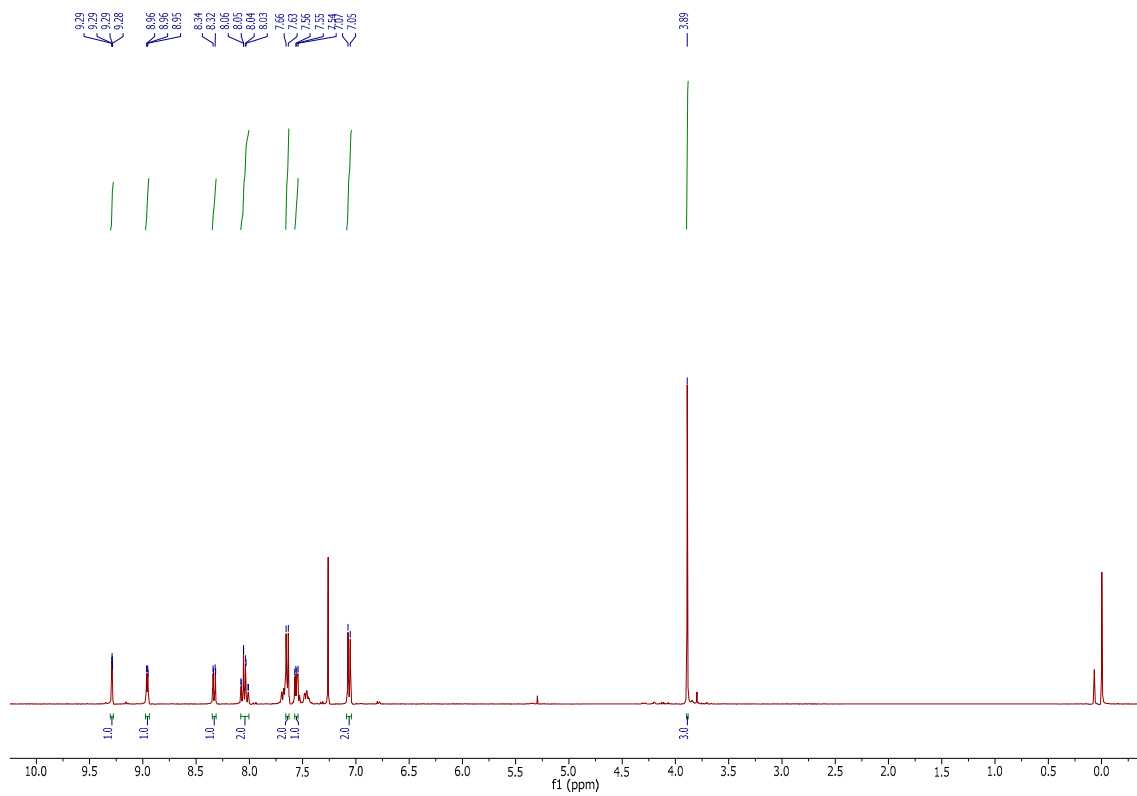


## 9-chloro-6H-pyrazino[2',3':4,5]thieno[3,2-d]pyrido[1,2-a]pyrimidin-6-one (13)

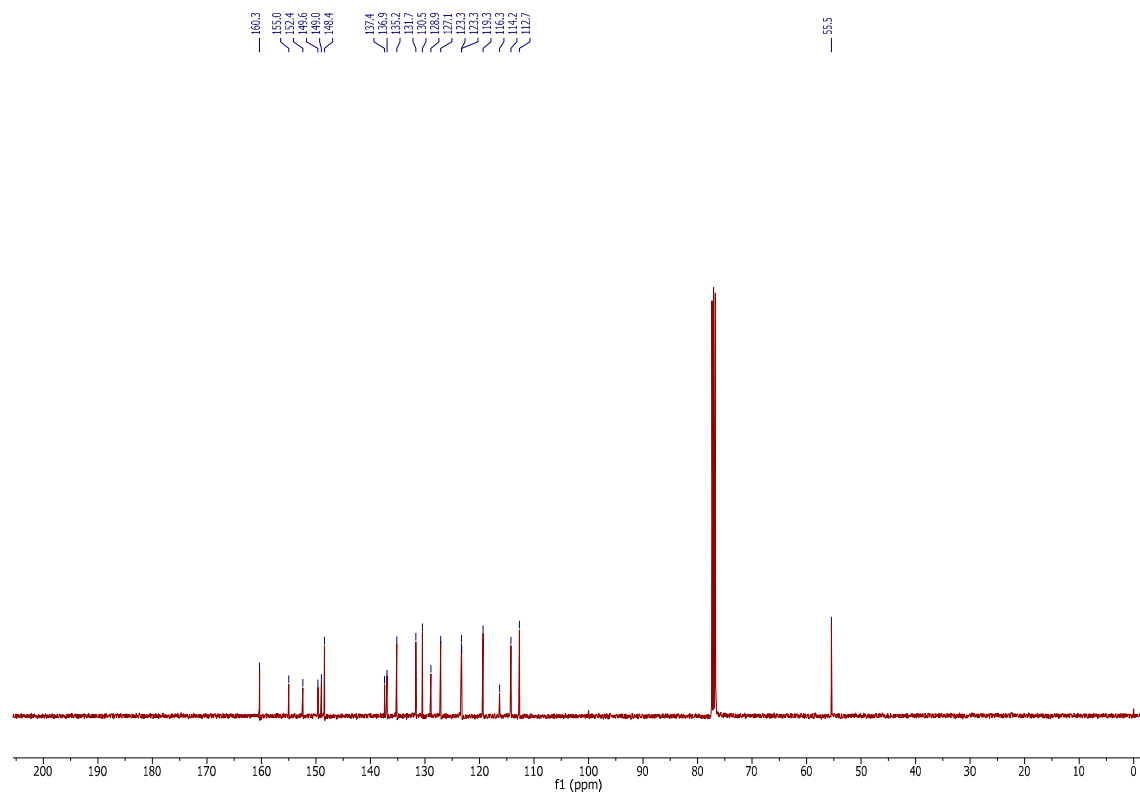
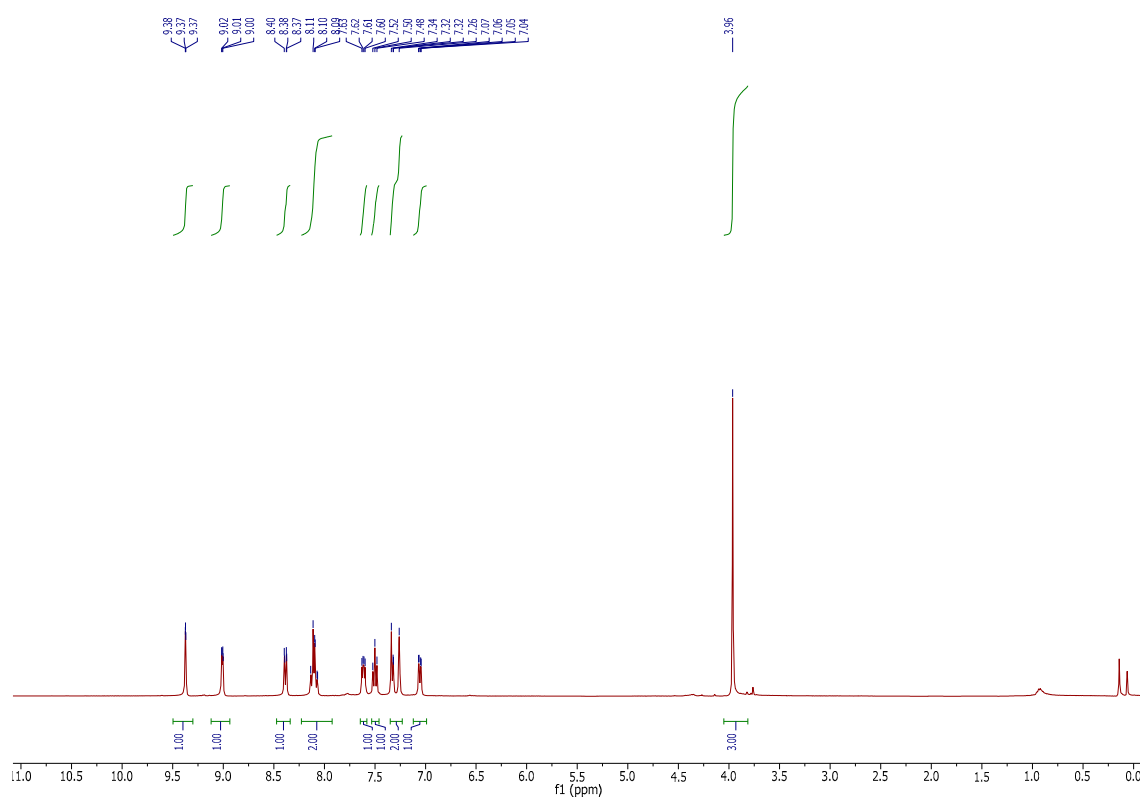


9-(*p*-tolyl)-6*H*-pyrido[1,2-*a*]pyrido[2',3':4,5]thieno[3,2-*d*]pyrimidin-6-one (14)

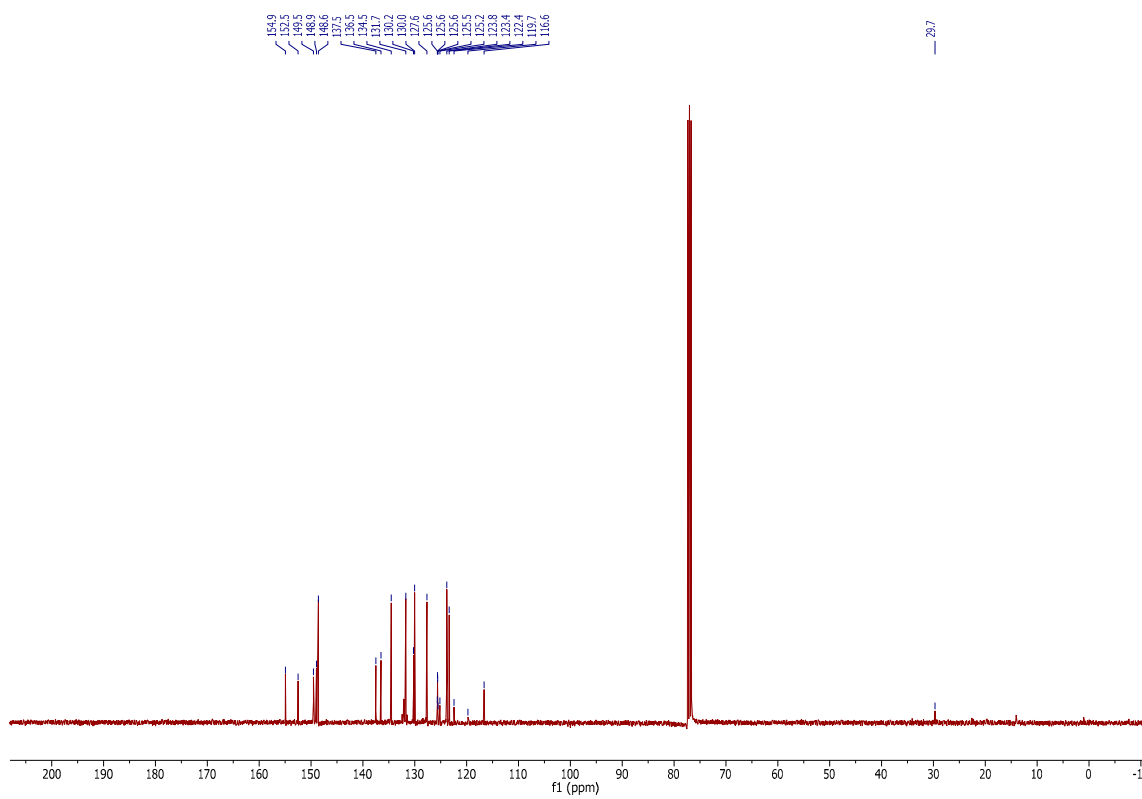
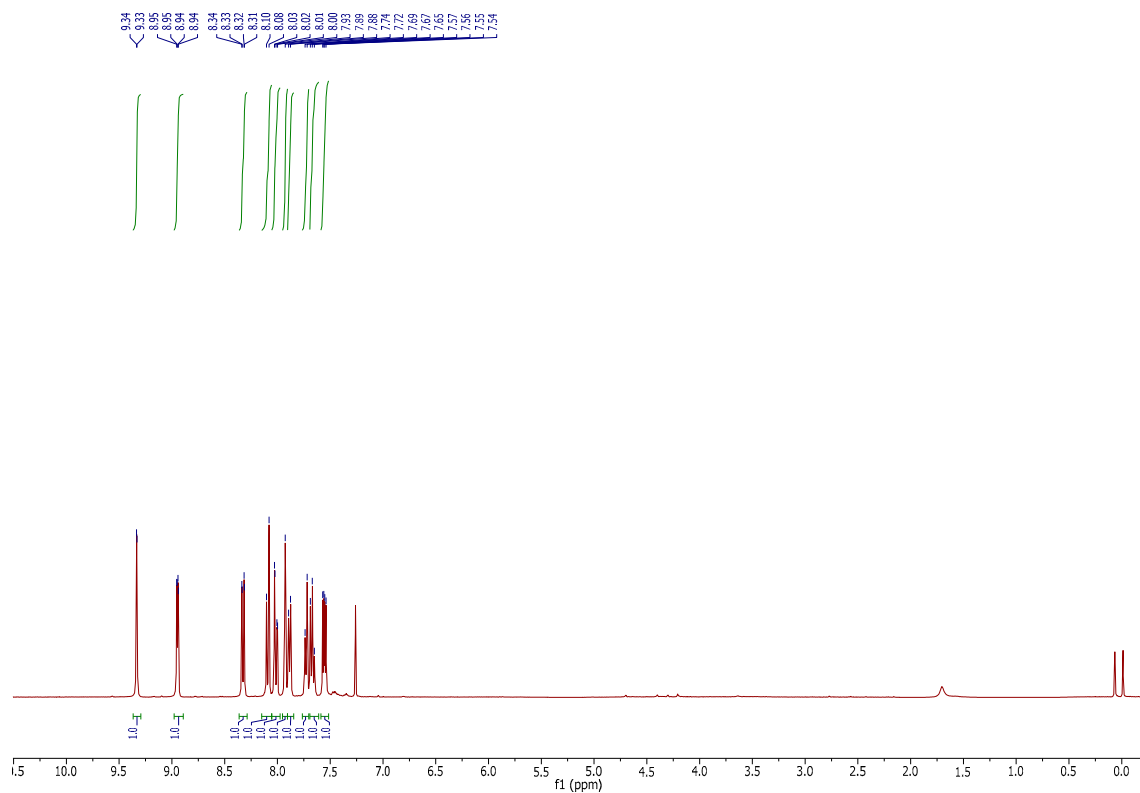
## 9-(4-methoxyphenyl)-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (15)



## 9-(3-methoxyphenyl)-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (16)



## 9-(3-(trifluoromethyl)phenyl)-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (17)





## 9-(4-(trifluoromethoxy)phenyl)-6H-pyrido[1,2-a]pyrido[2',3':4,5]thieno[3,2-d]pyrimidin-6-one (18)

