

## Supplementary data

# Glycosylation of methoxylated flavonoids in the cultures of *Isaria fumosorosea* KCH J2

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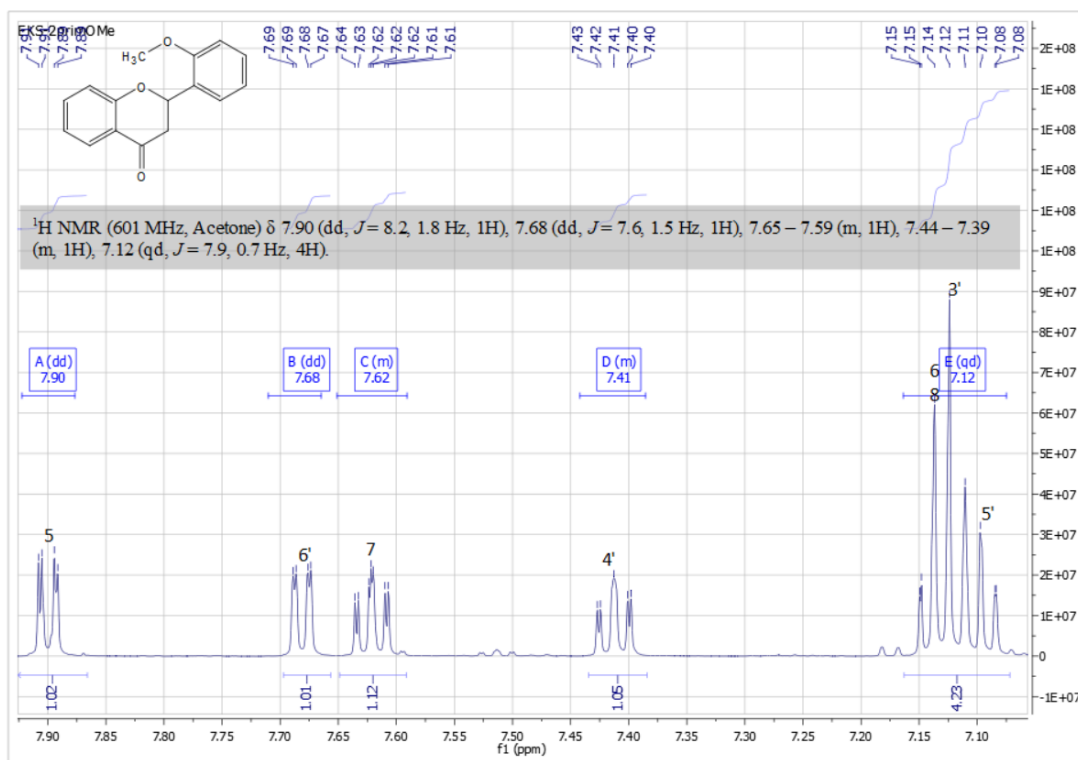


Figure S1. <sup>1</sup>H NMR spectrum of 2'-methoxyflavanone(1) (Acetone-d<sub>6</sub>, 600 MHz)

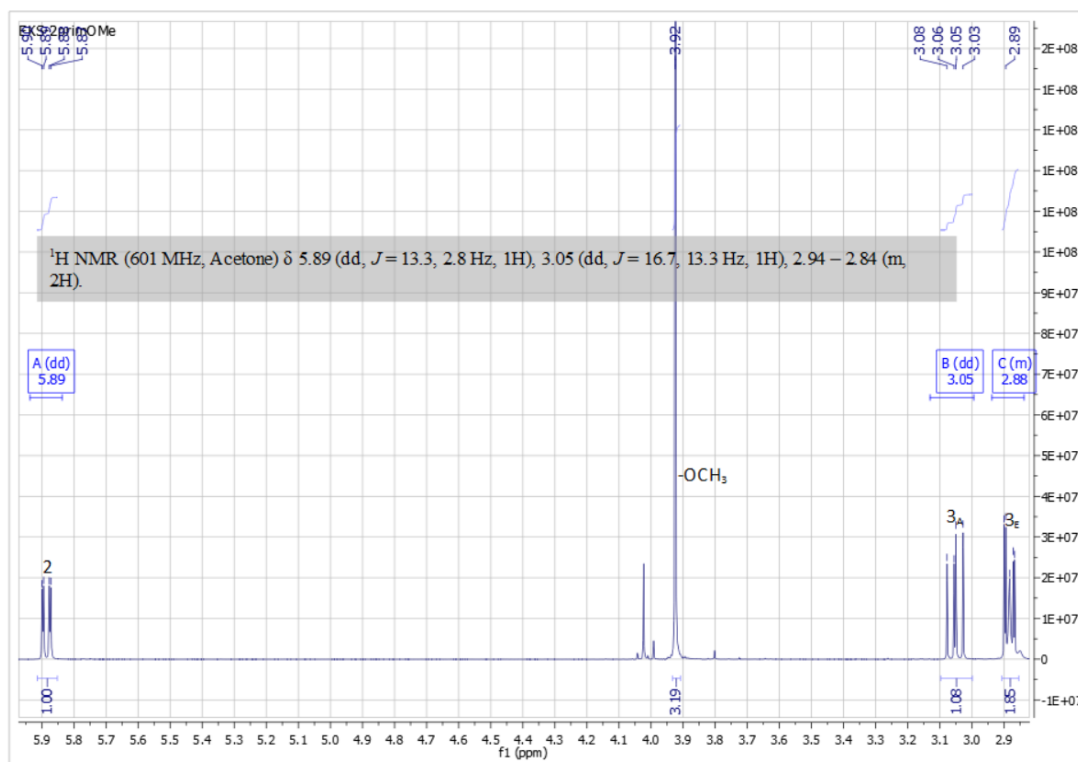


Figure S2. <sup>1</sup>H NMR spectrum of 2'-methoxyflavanone(1) (Acetone-d<sub>6</sub>, 600 MHz)

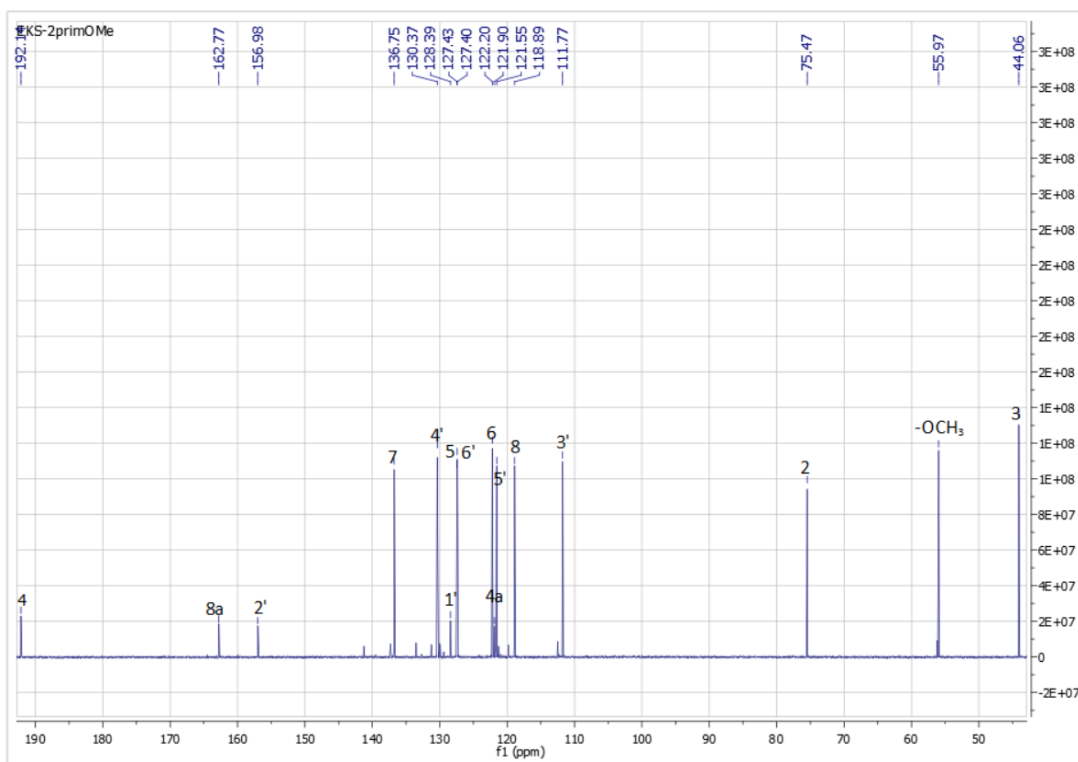


Figure S3.  $^{13}\text{C}$  NMR spectrum of 2'-methoxyflavanone (1) (Acetone- $d_6$ , 151 MHz)

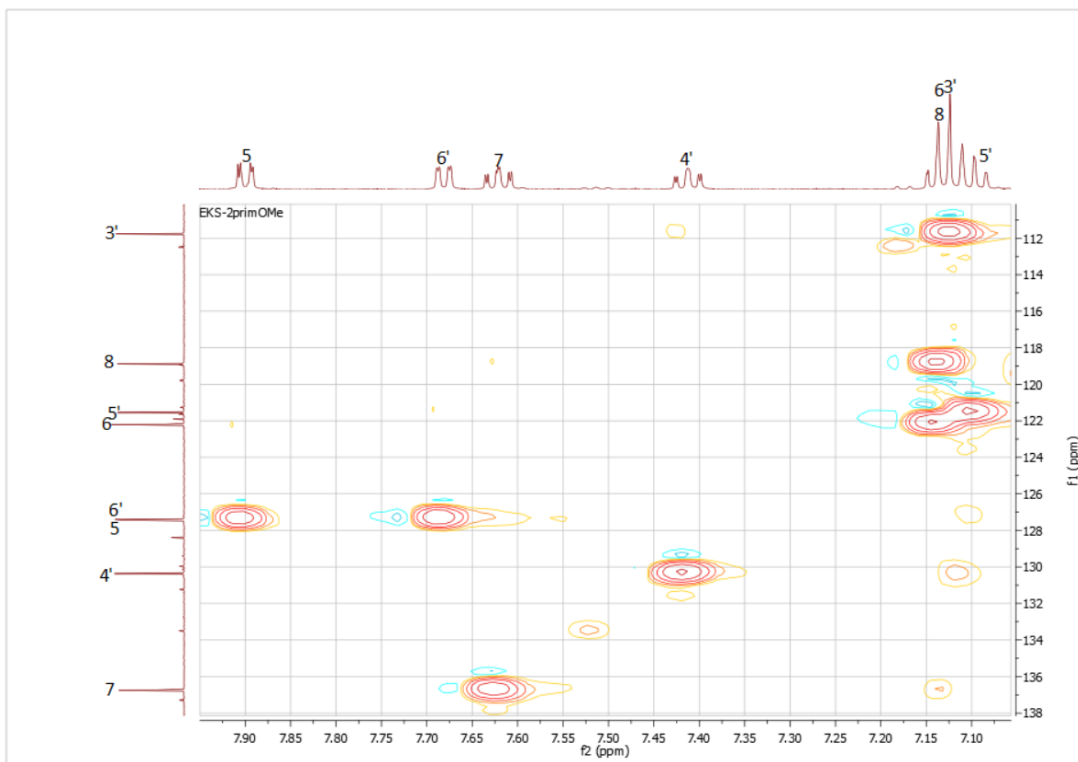


Figure S4. HSQC NMR spectrum of 2'-methoxyflavanone (1) (Acetone- $d_6$ , 151 MHz)

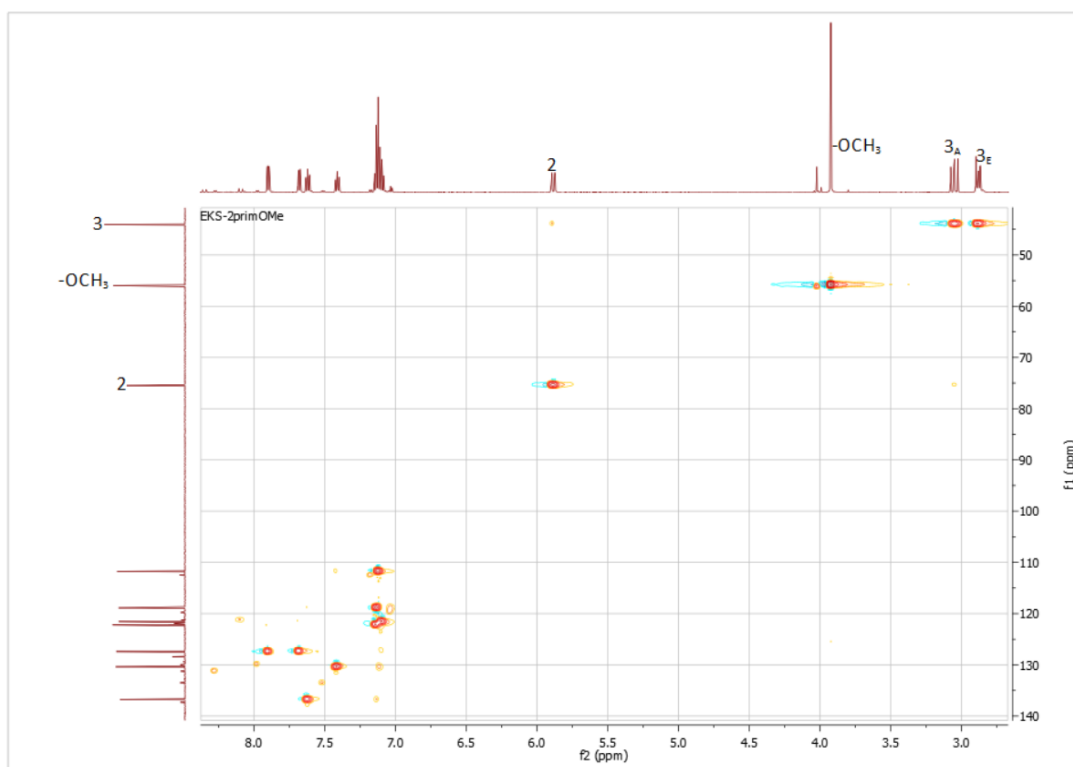


Figure S5. HSQC NMR spectrum of 2'-methoxyflavanone (1) (Acetone-d<sub>6</sub>, 151 MHz)

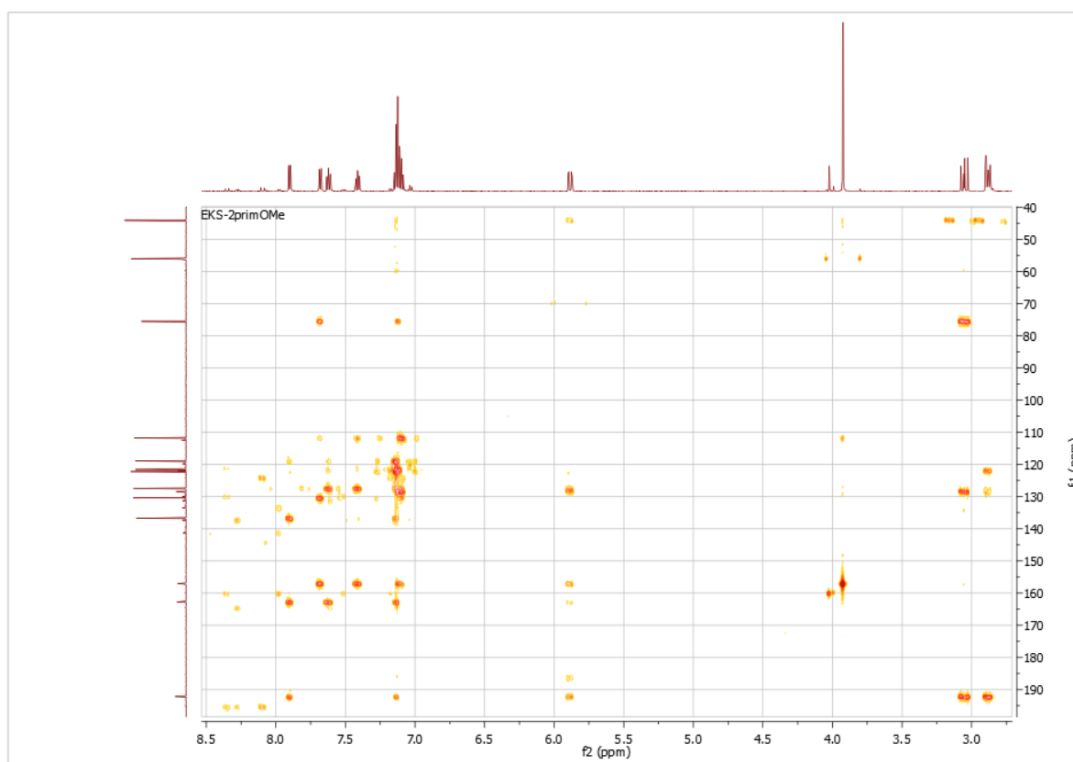
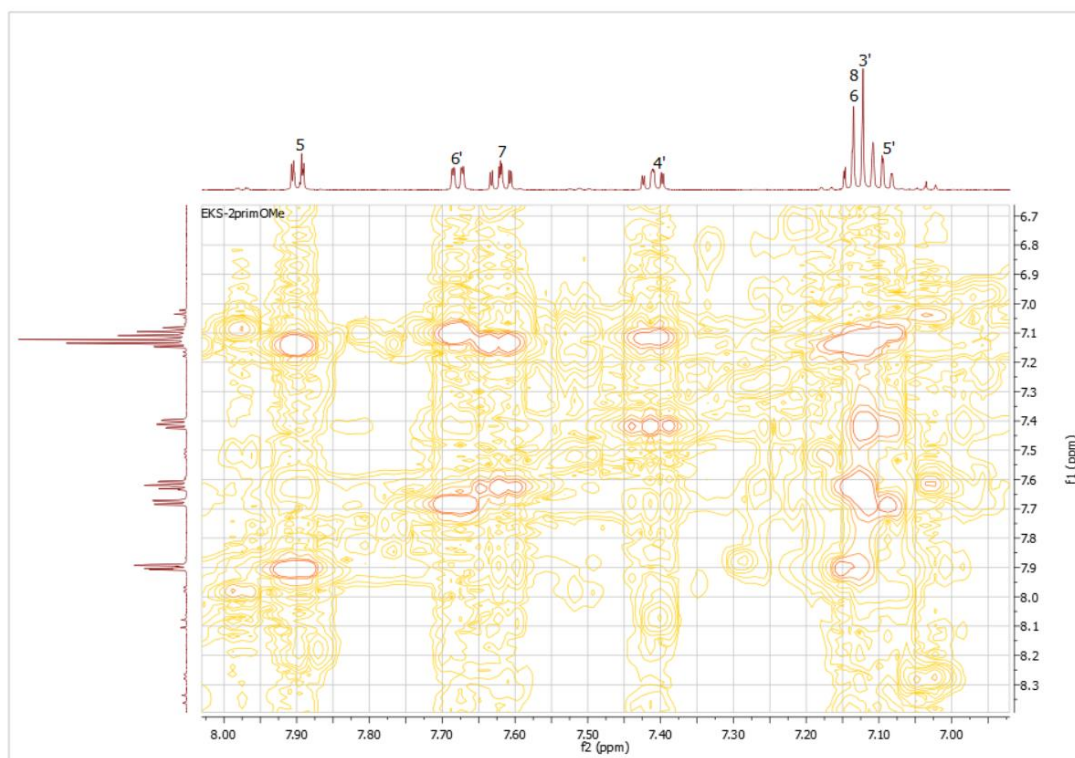
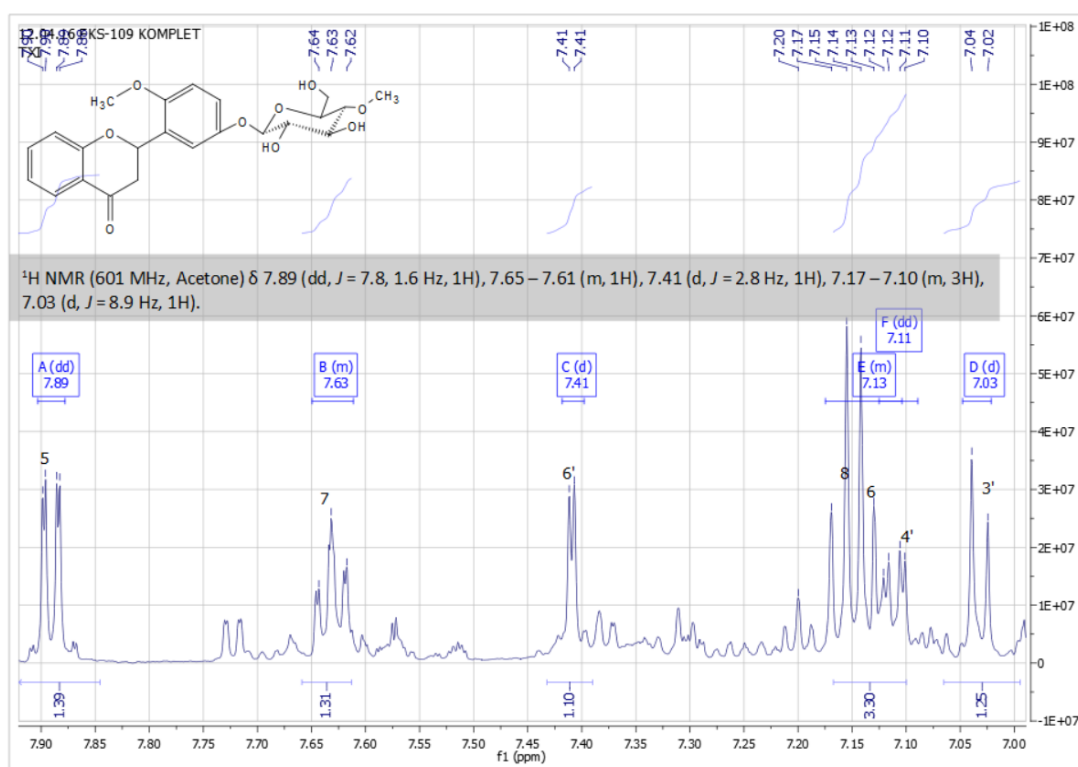


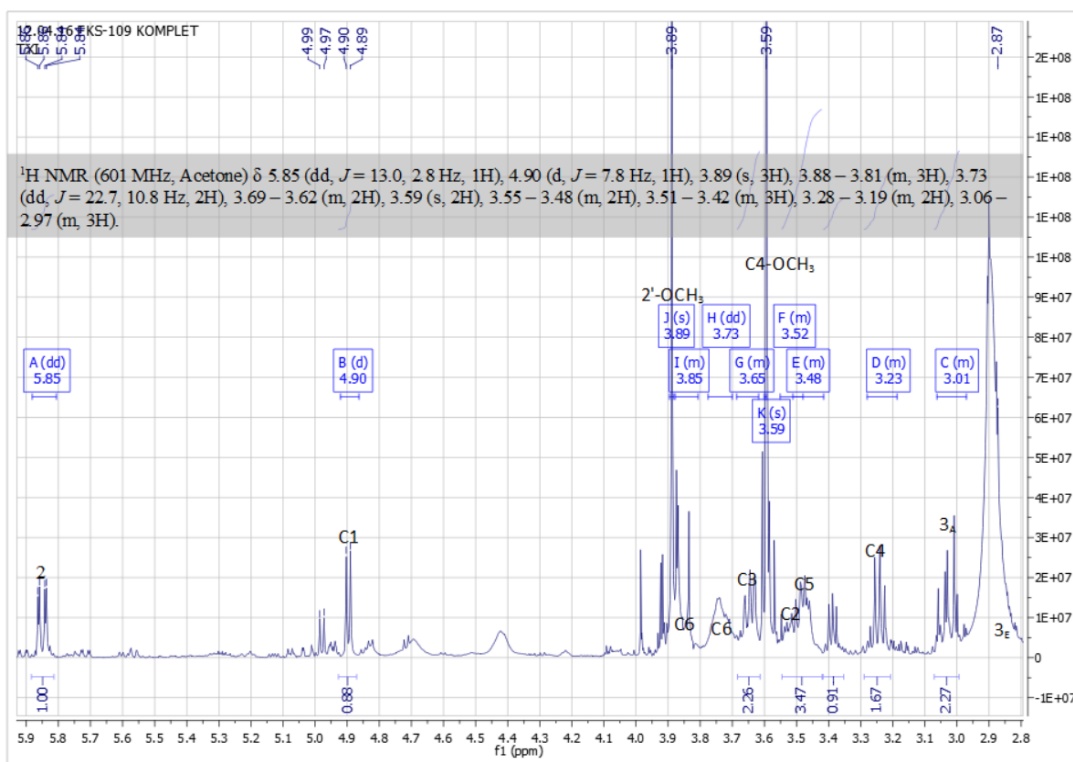
Figure S6. HMBC NMR spectrum of 2'-methoxyflavanone (1) (Acetone-d<sub>6</sub>, 151 MHz)



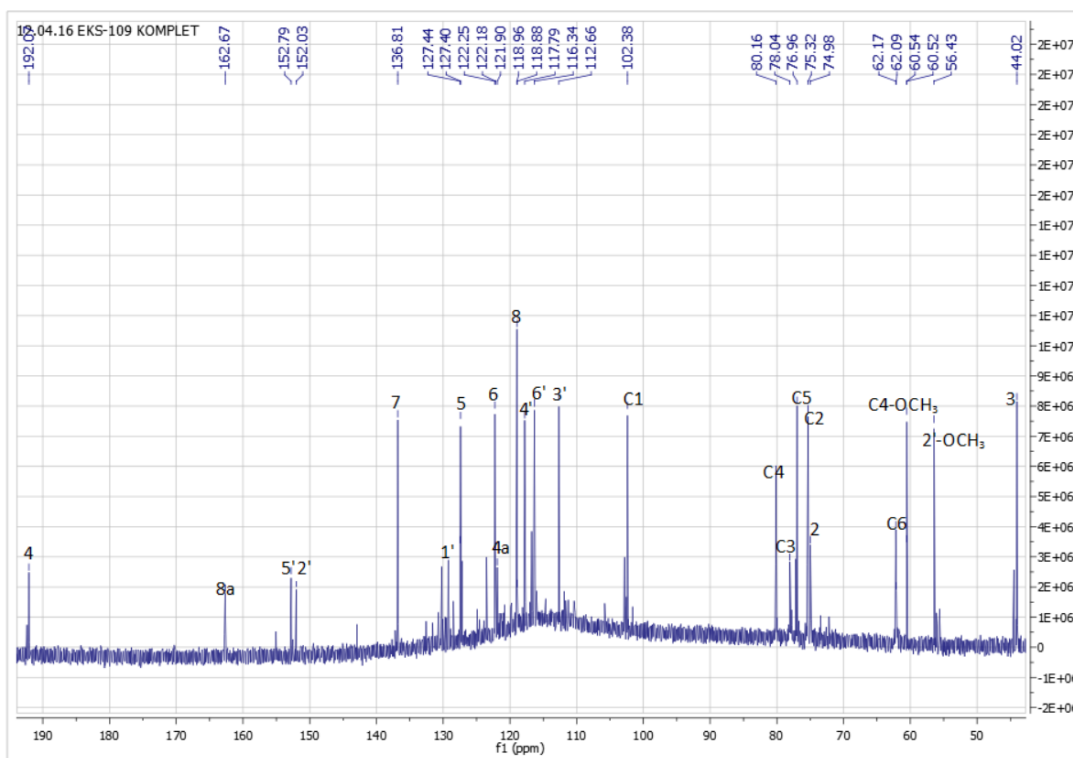
**Figure S7.** COSY NMR spectrum of 2'-methoxyflavanone (1) (Acetone- $d_6$ , 600 MHz)



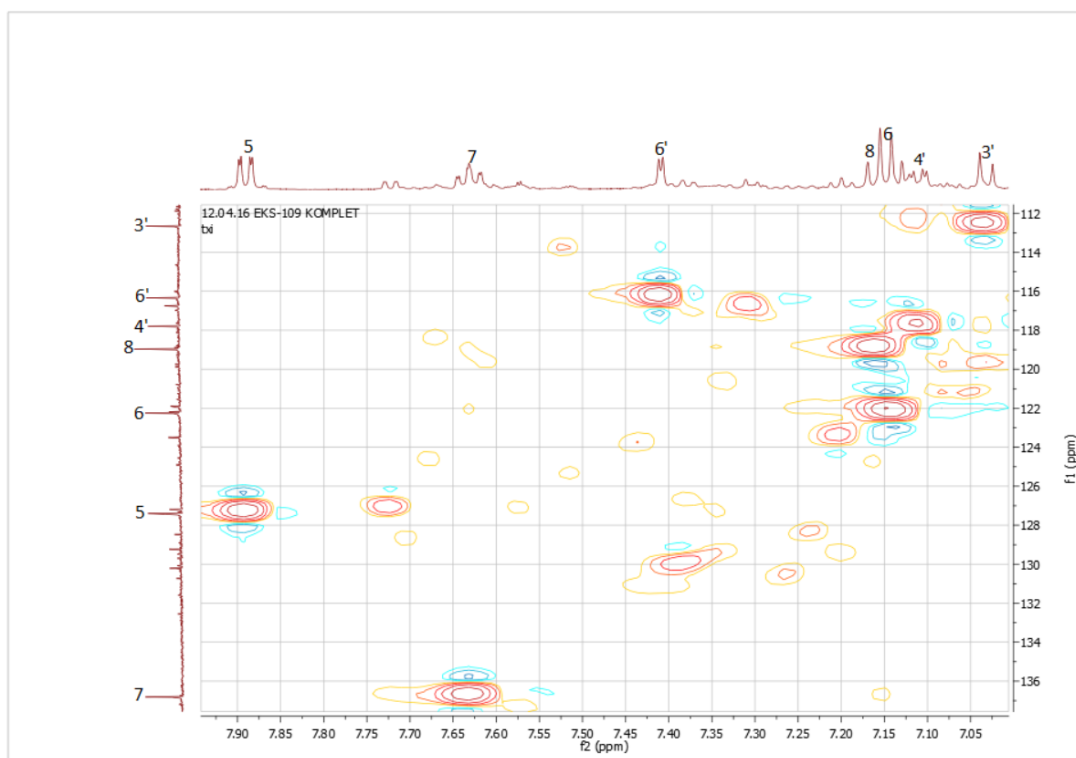
**Figure S8.**  $^1\text{H}$  NMR spectrum of 2'-methoxyflavanone 5'- $O$ - $\beta$ -D-(4''- $O$ -methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 600 MHz)



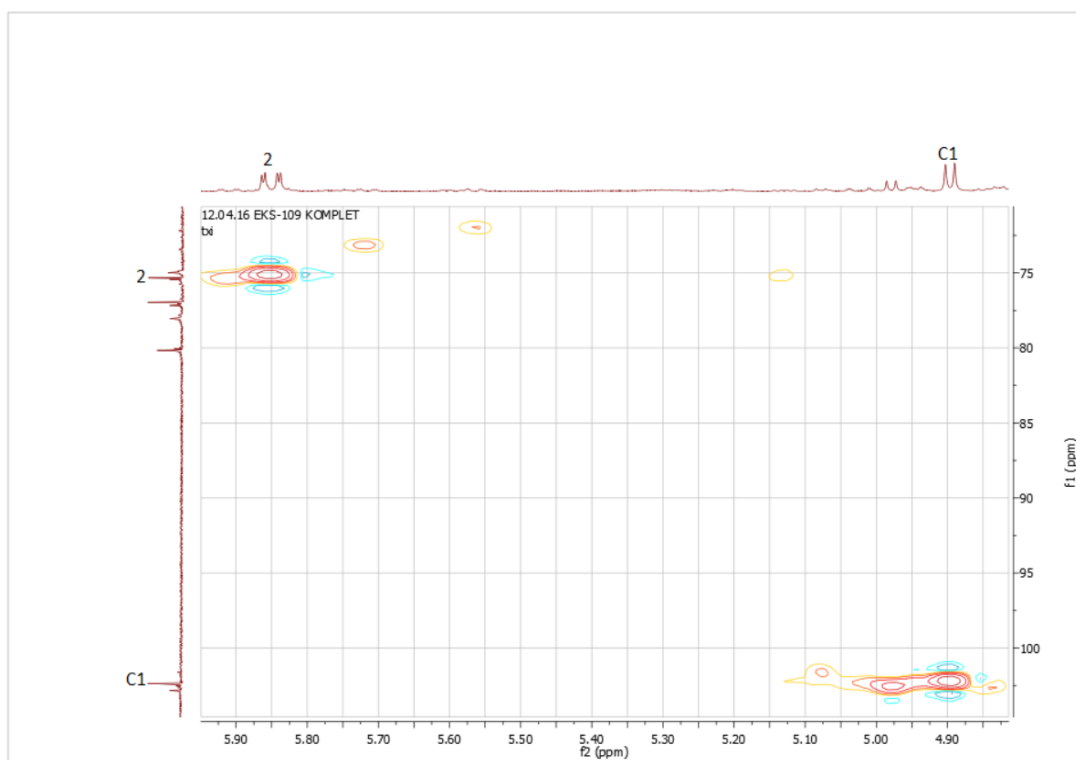
**Figure S9.**  $^1\text{H}$  NMR spectrum of 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 600 MHz)



**Figure S10.**  $^{13}\text{C}$  NMR spectrum of 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 151 MHz)

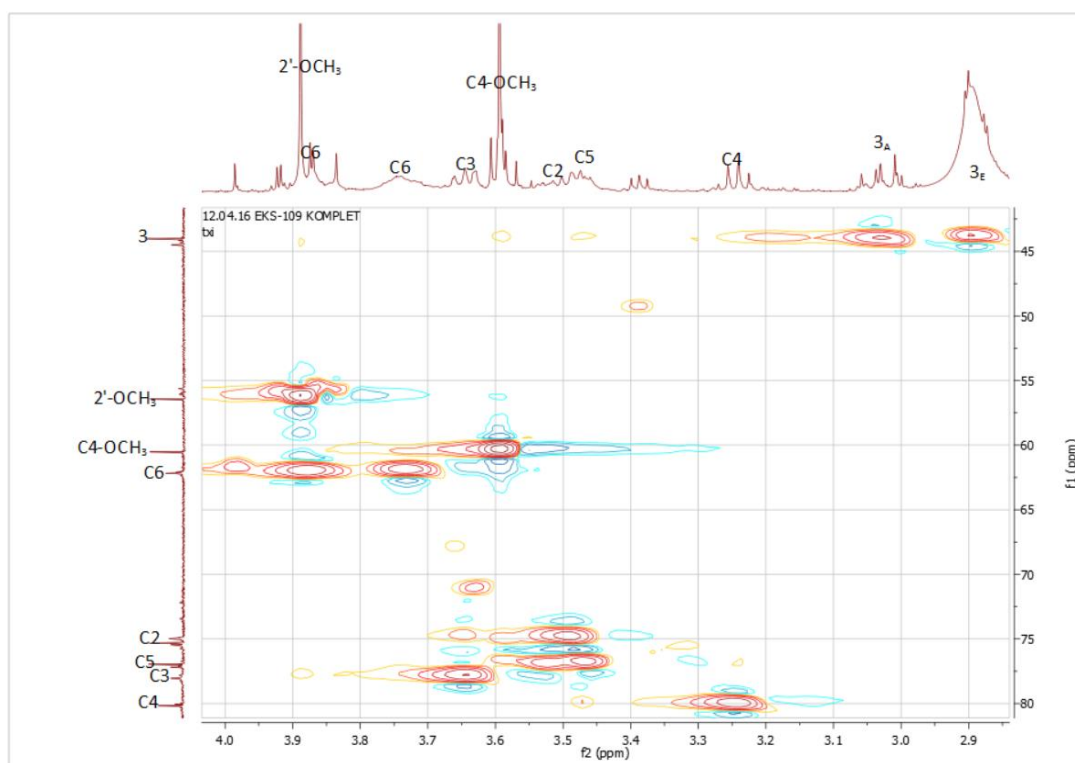


**Figure S11.** HSQC NMR spectrum of 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 151 MHz)

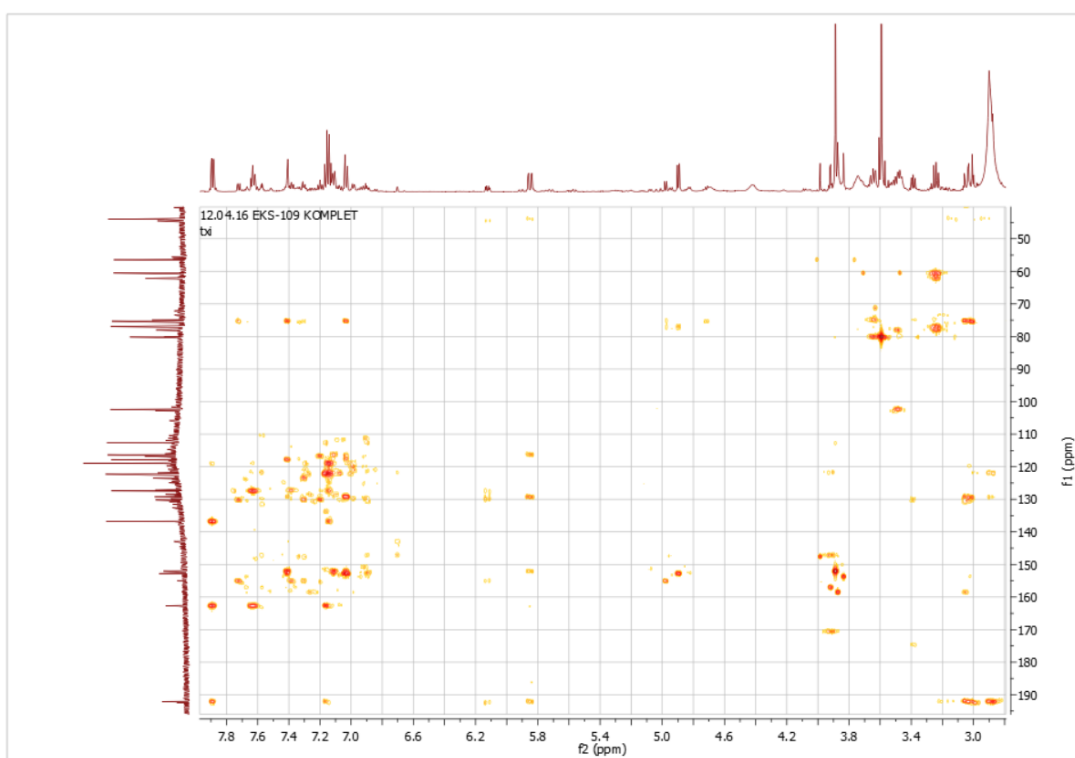


**Figure S12.** HSQC NMR spectrum of 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 151 MHz)

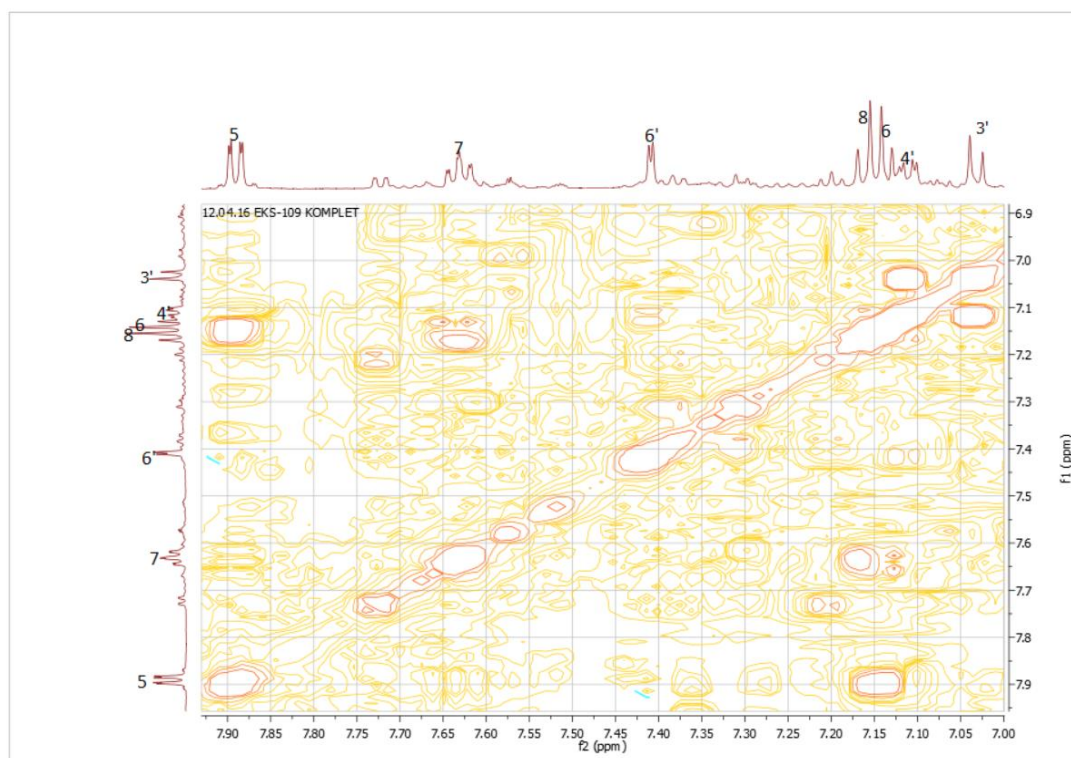




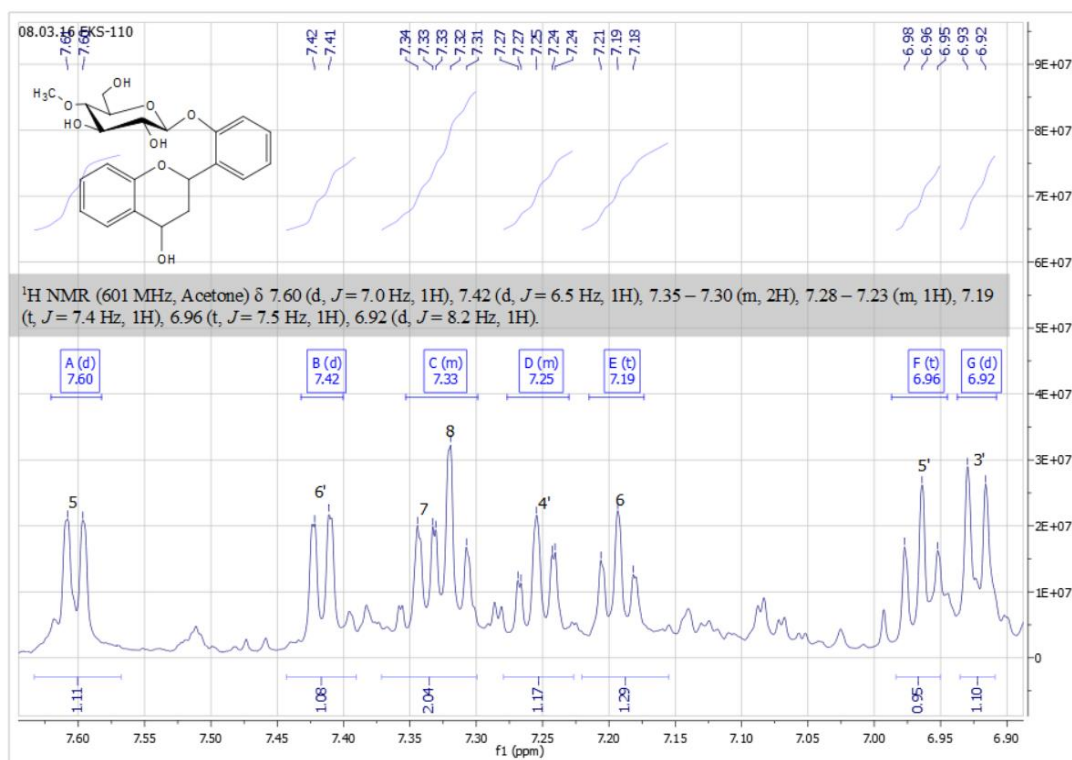
**Figure S13.** HSQC NMR spectrum of 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 151 MHz)



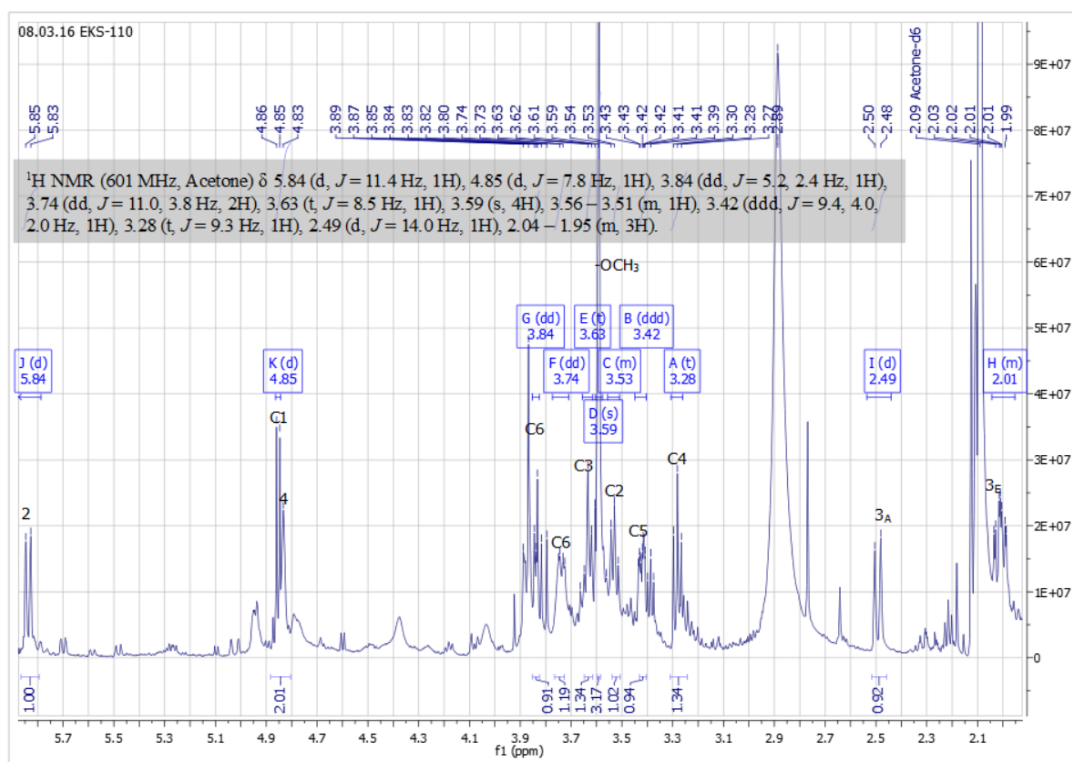
**Figure S14.** HMBC NMR spectrum 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 151 MHz)



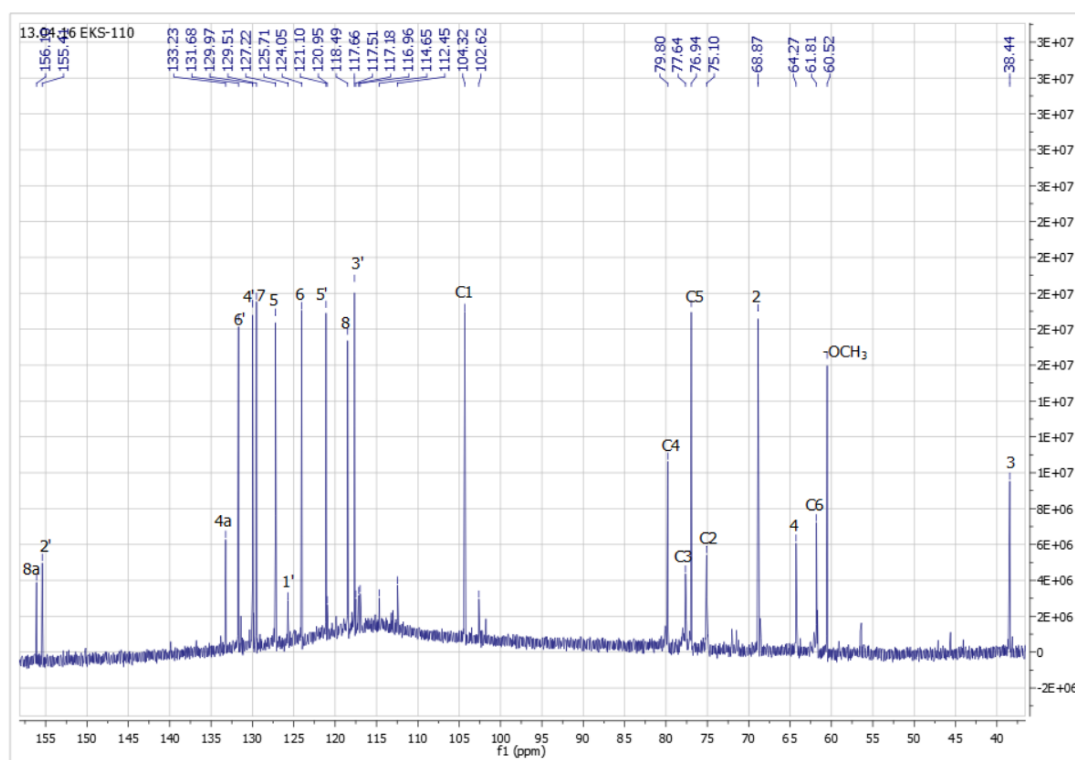
**Figure S15.** COSY NMR spectrum of 2'-methoxyflavanone 5'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1a) (Acetone- $d_6$ , 600 MHz)



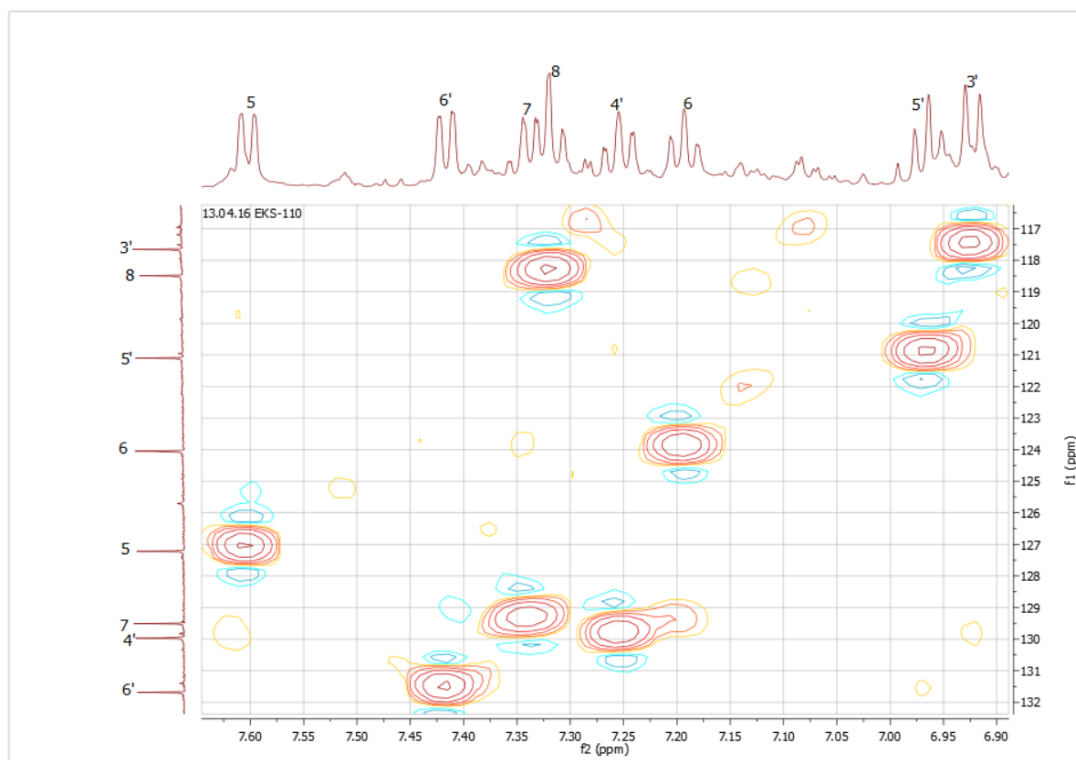
**Figure S16.** <sup>1</sup>H NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 600 MHz)



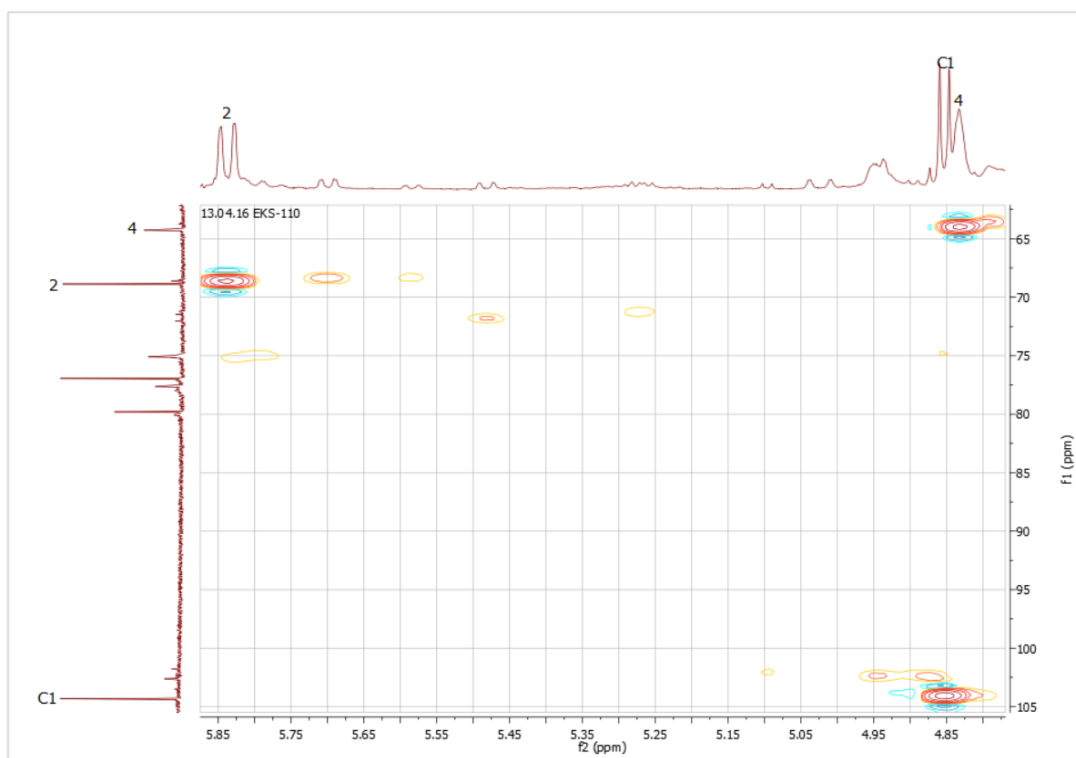
**Figure S17.**  $^1\text{H}$  NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 600 MHz)



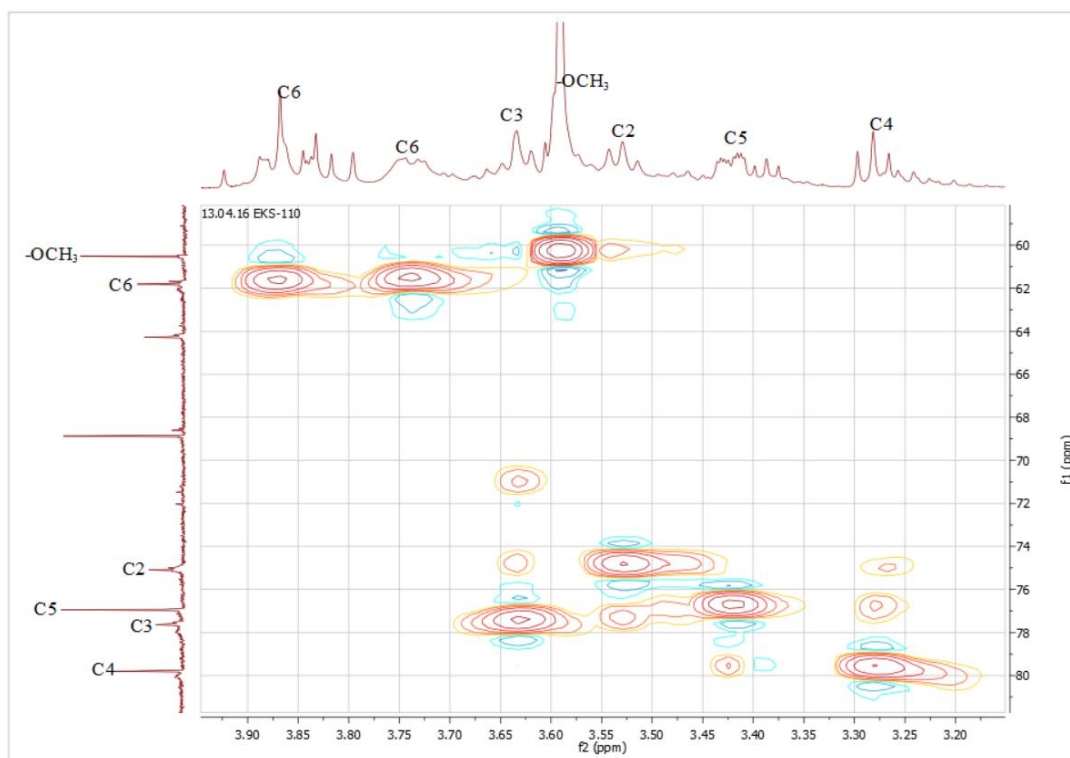
**Figure S18.**  $^{13}\text{C}$  NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 151 MHz)



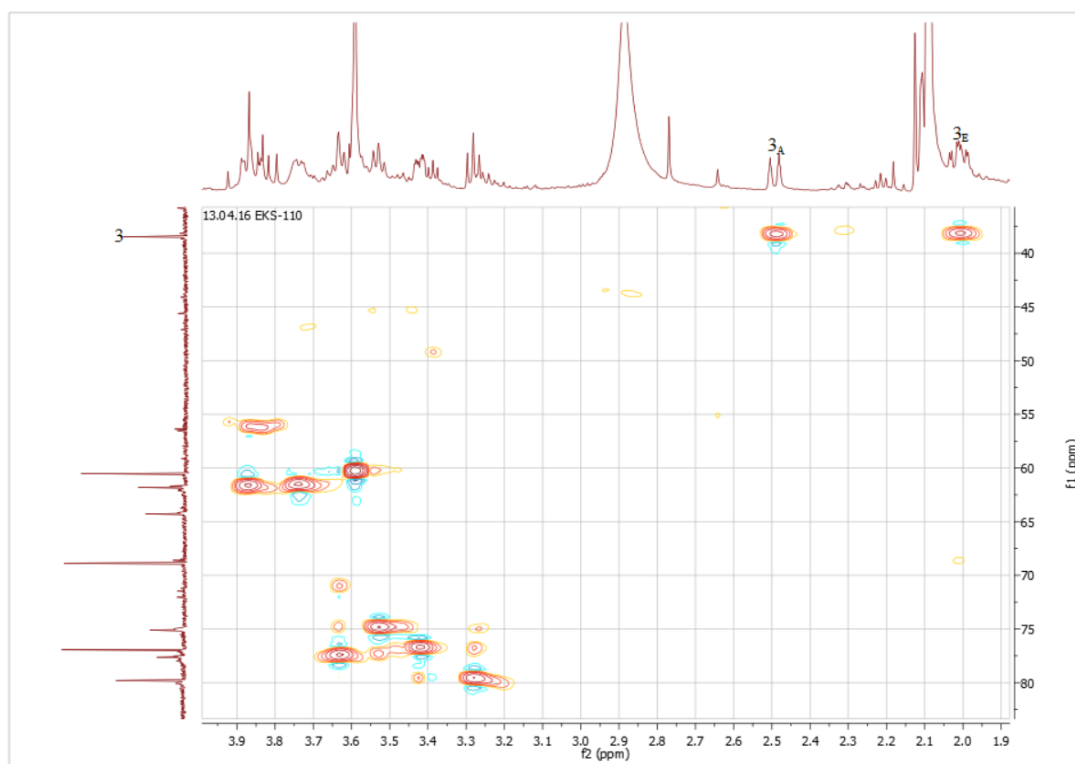
**Figure S19.** HSQC NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 151 MHz)



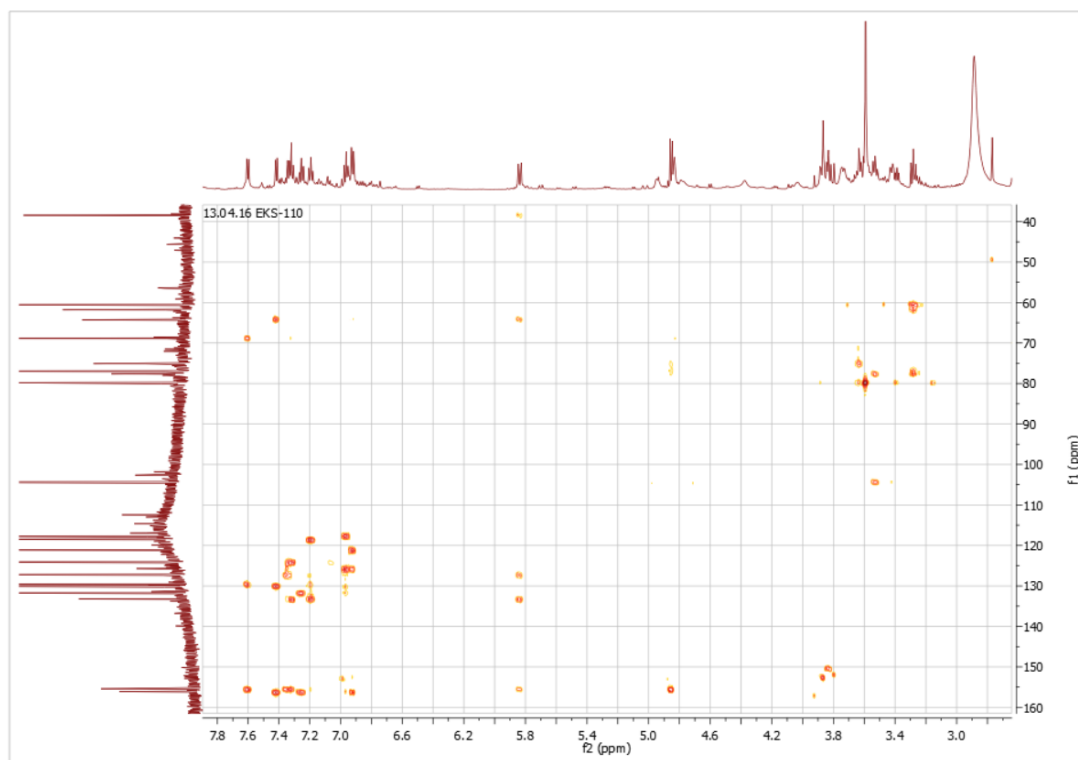
**Figure S20.** HSQC NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 151 MHz)



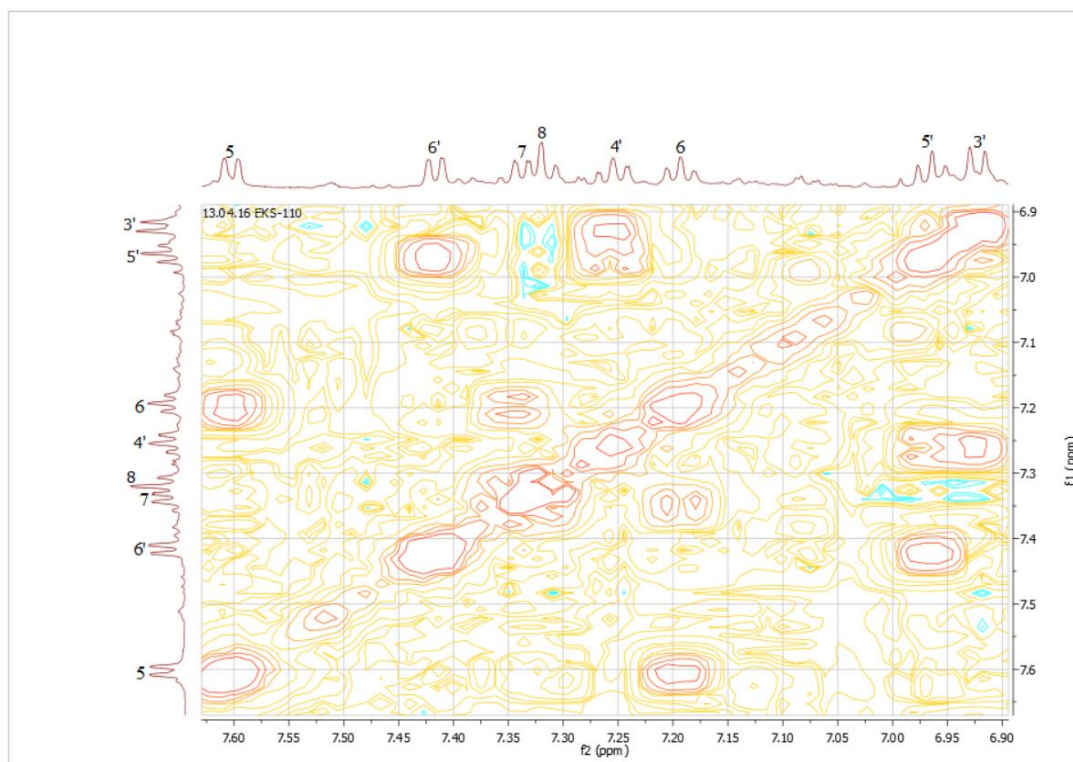
**Figure S21.** HSQC NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 151 MHz)



**Figure S22.** HSQC NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 151 MHz)



**Figure S23.** HMBC NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 151 MHz)



**Figure S24.** COSY NMR spectrum of flavan-4-ol 2'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (1b) (Acetone- $d_6$ , 600 MHz)



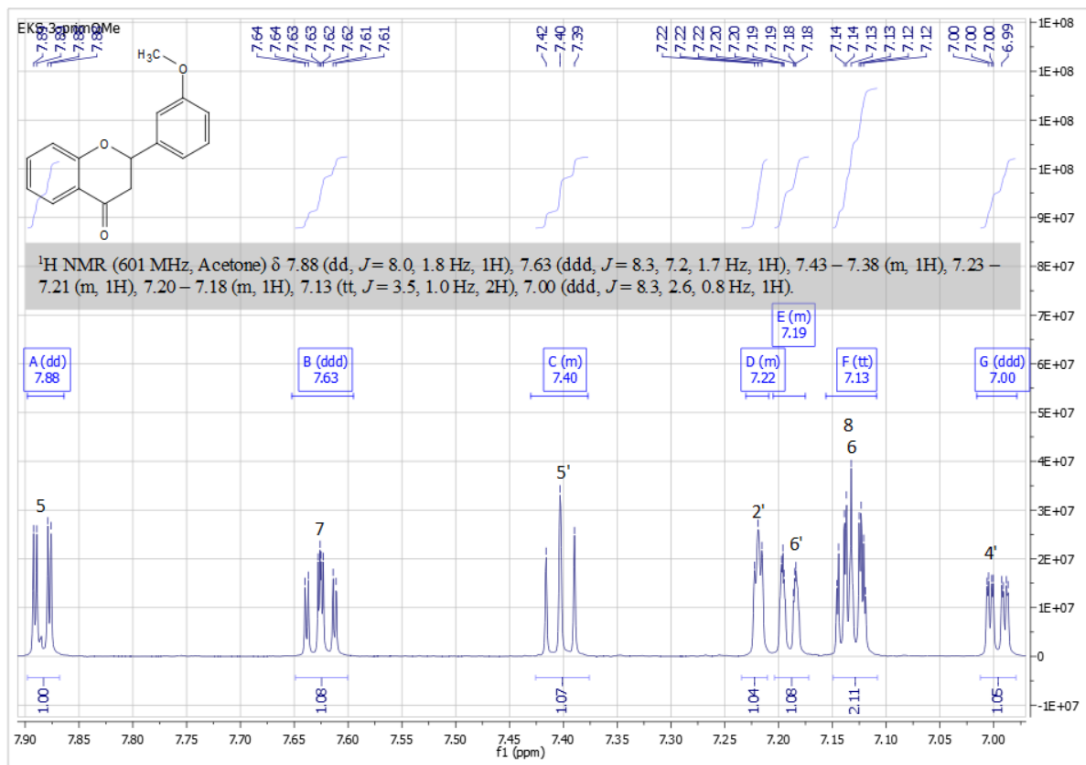


Figure S25. <sup>1</sup>H NMR spectrum of 3'-methoxyflavanone (2) (Acetone-d<sub>6</sub>, 600 MHz)

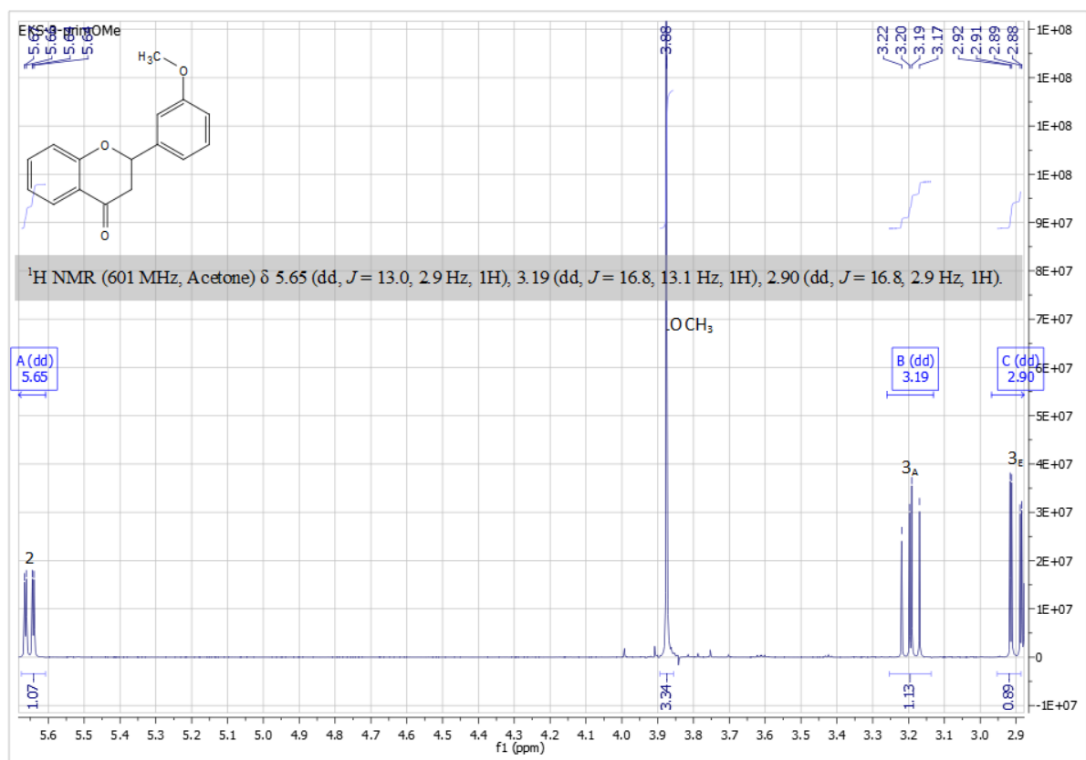
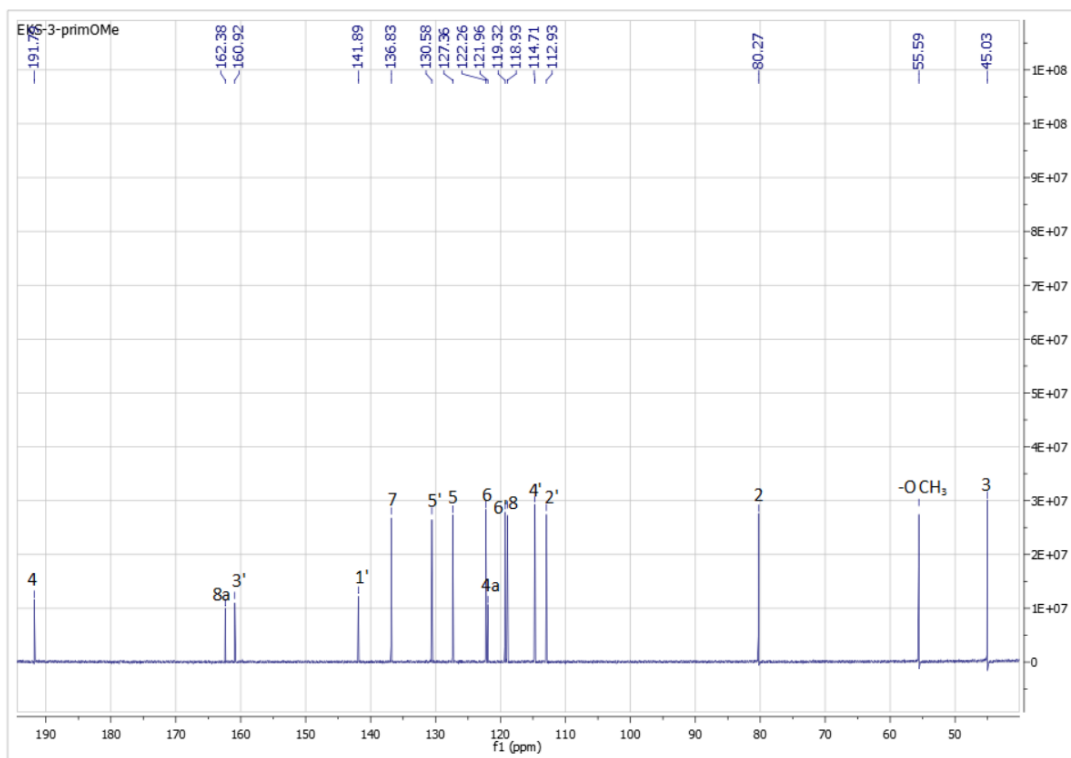
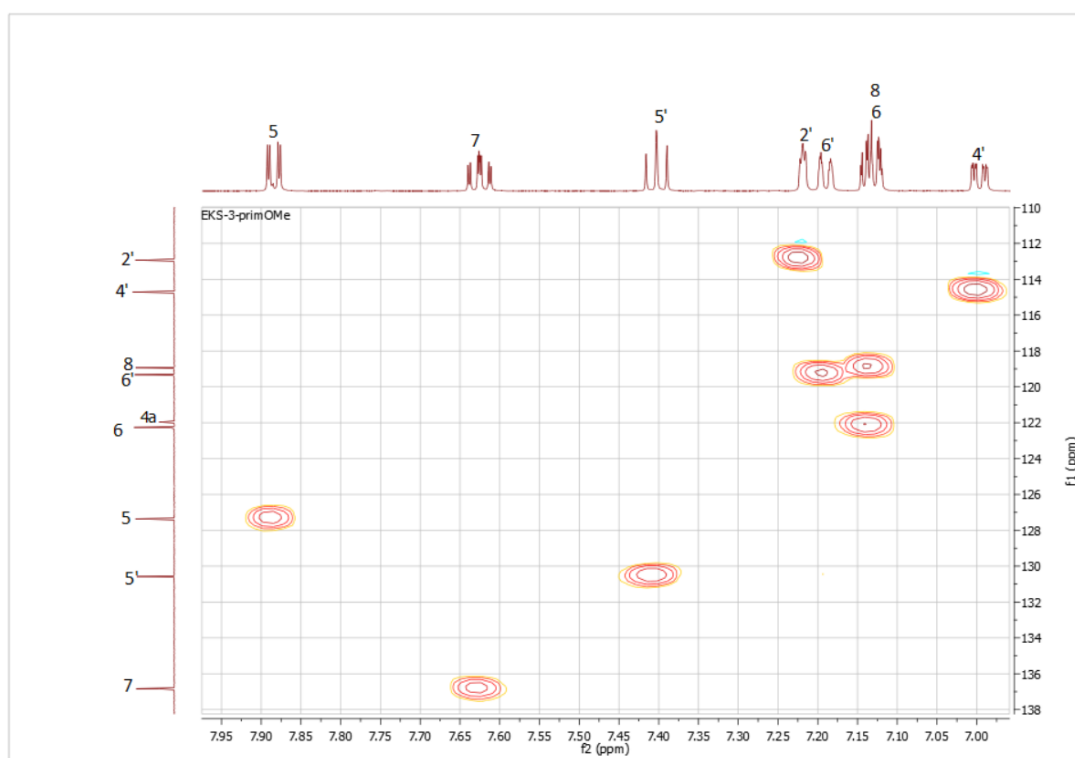


Figure S26. <sup>1</sup>H NMR spectrum of 3'-methoxyflavanone (2) (Acetone-d<sub>6</sub>, 600 MHz)

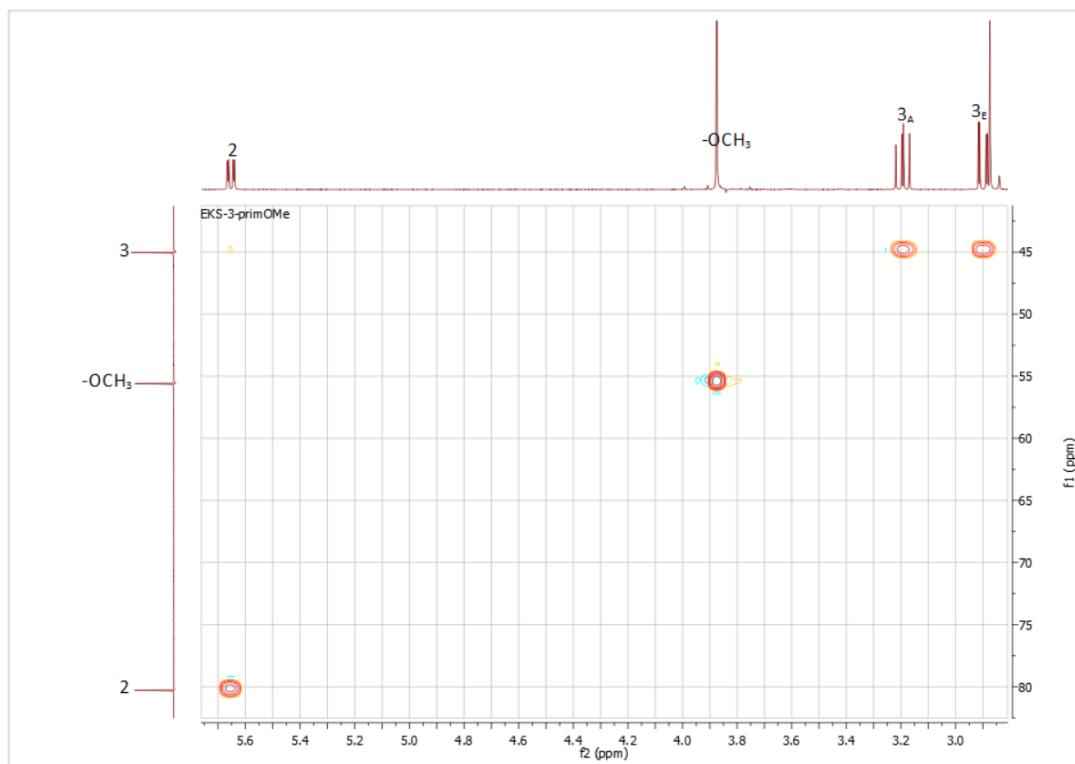


**Figure S27.**  $^{13}\text{C}$  NMR spectrum of 3'-methoxyflavanone (2) (Acetone- $d_6$ , 151 MHz)

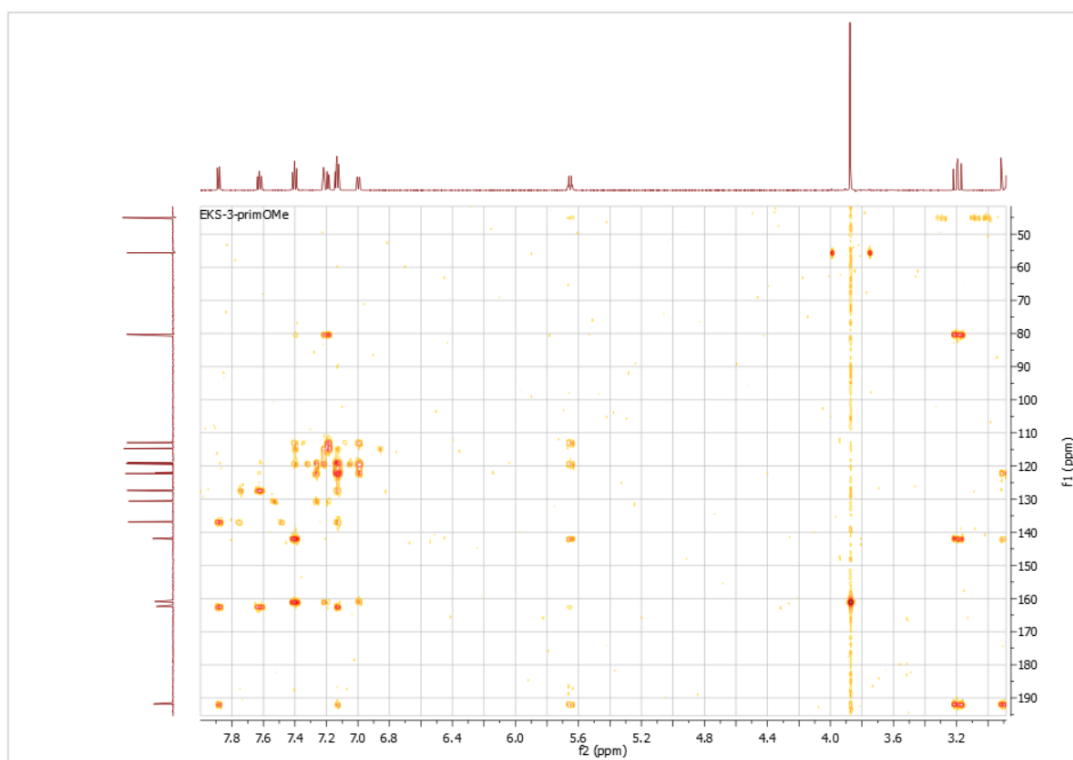


**Figure S28.** HSQC NMR spectrum of 3'-methoxyflavanone (2) (Acetone- $d_6$ , 151 MHz)





**Figure S29.** HSQC NMR spectrum of 3'-methoxyflavanone (2) (Acetone- $d_6$ , 151 MHz)



**Figure S30.** HMBC NMR spectrum of 3'-methoxyflavanone (2) (Acetone- $d_6$ , 151 MHz)

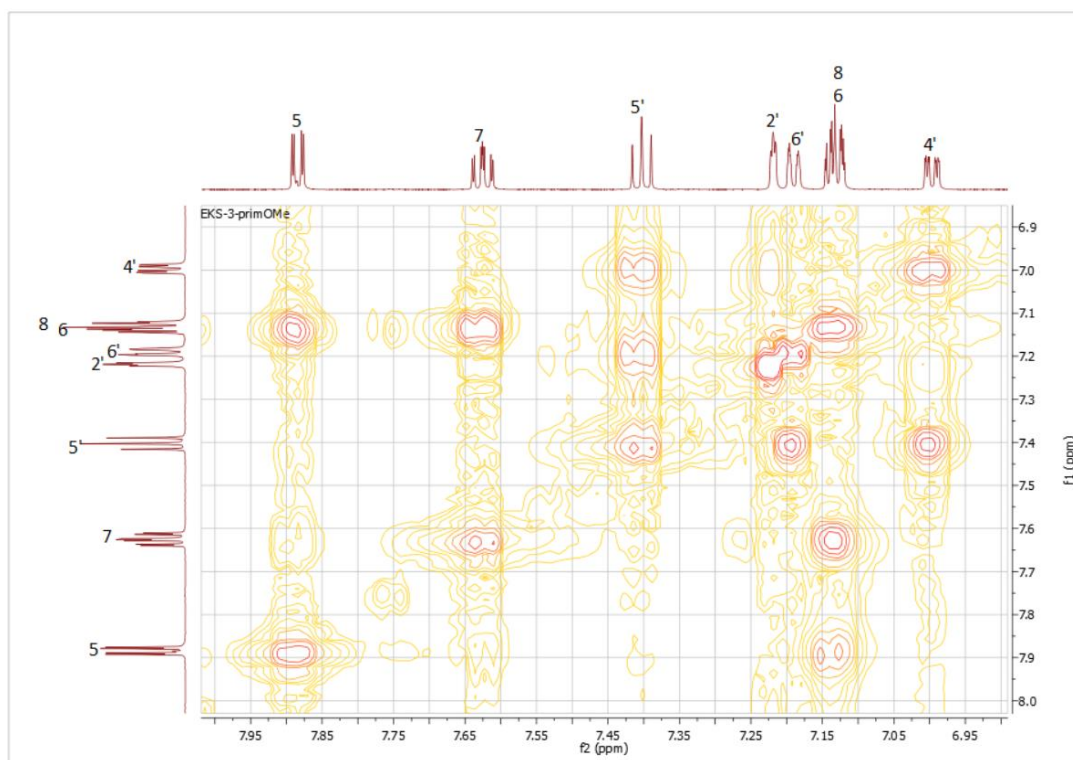


Figure S31. COSY NMR spectrum of 3'-methoxyflavanone (2) (Acetone- $d_6$ , 600 MHz)

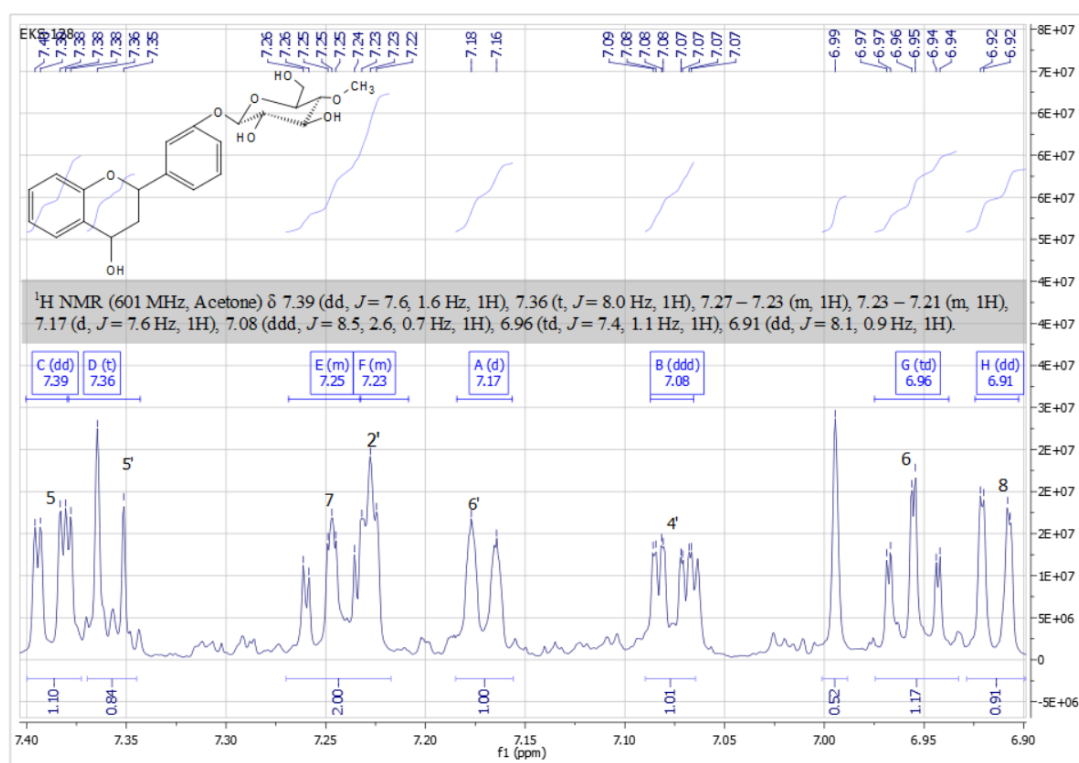
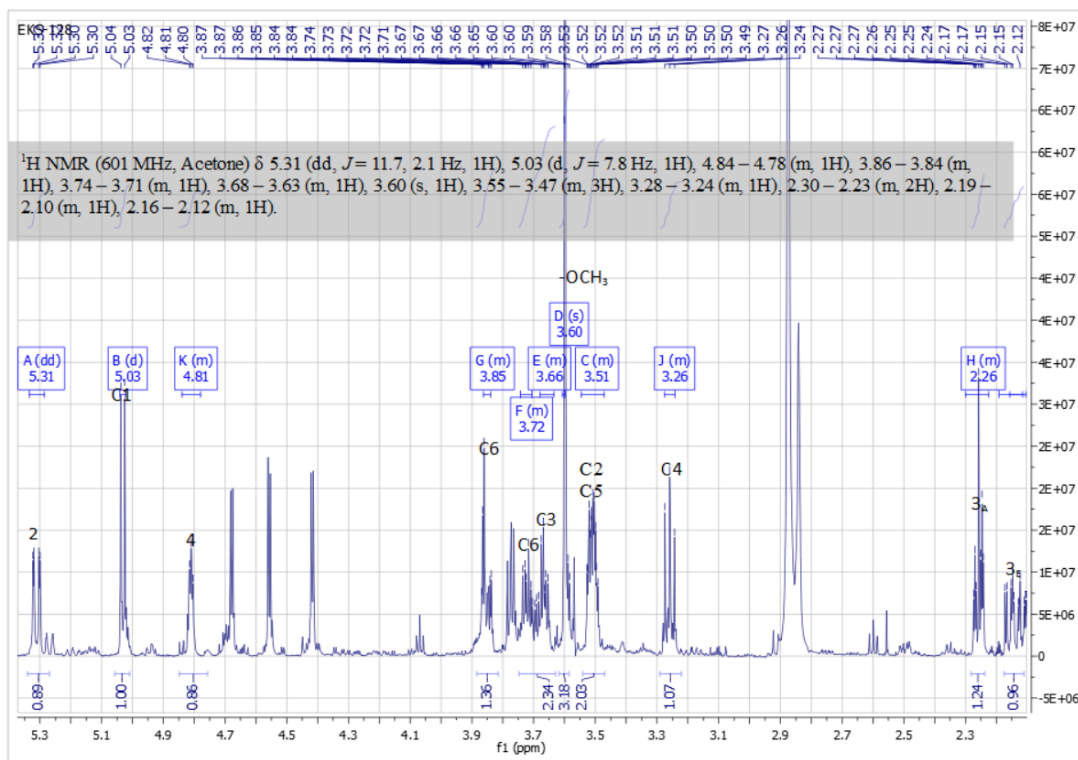
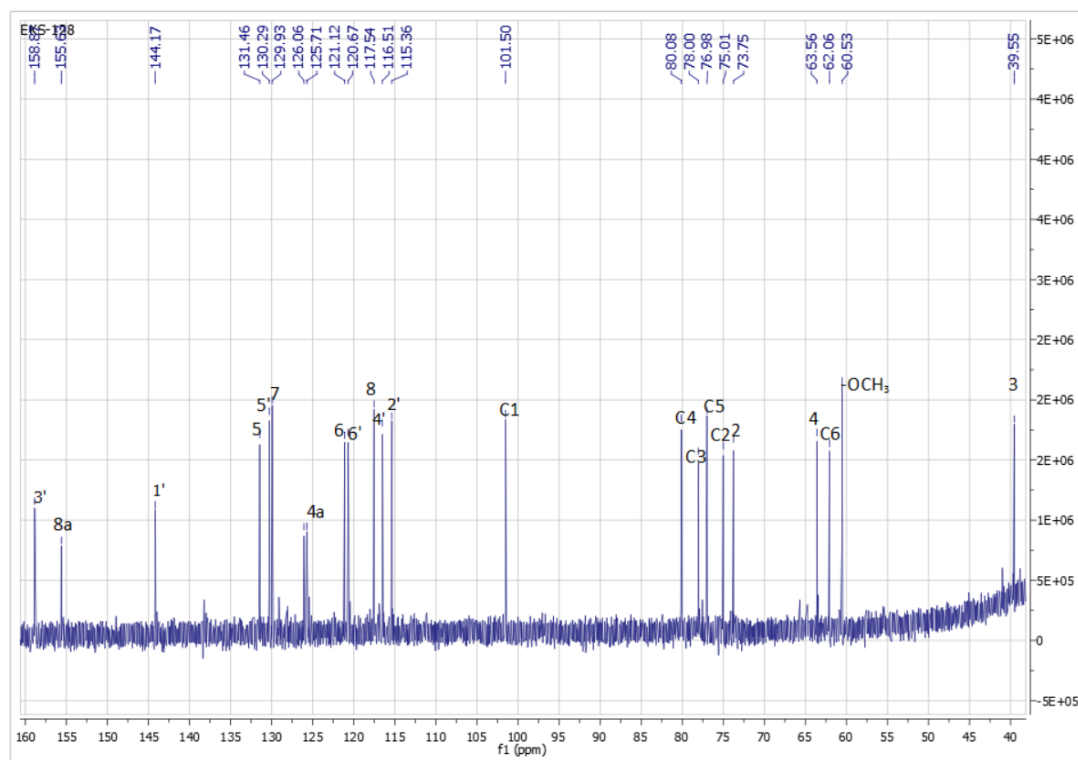


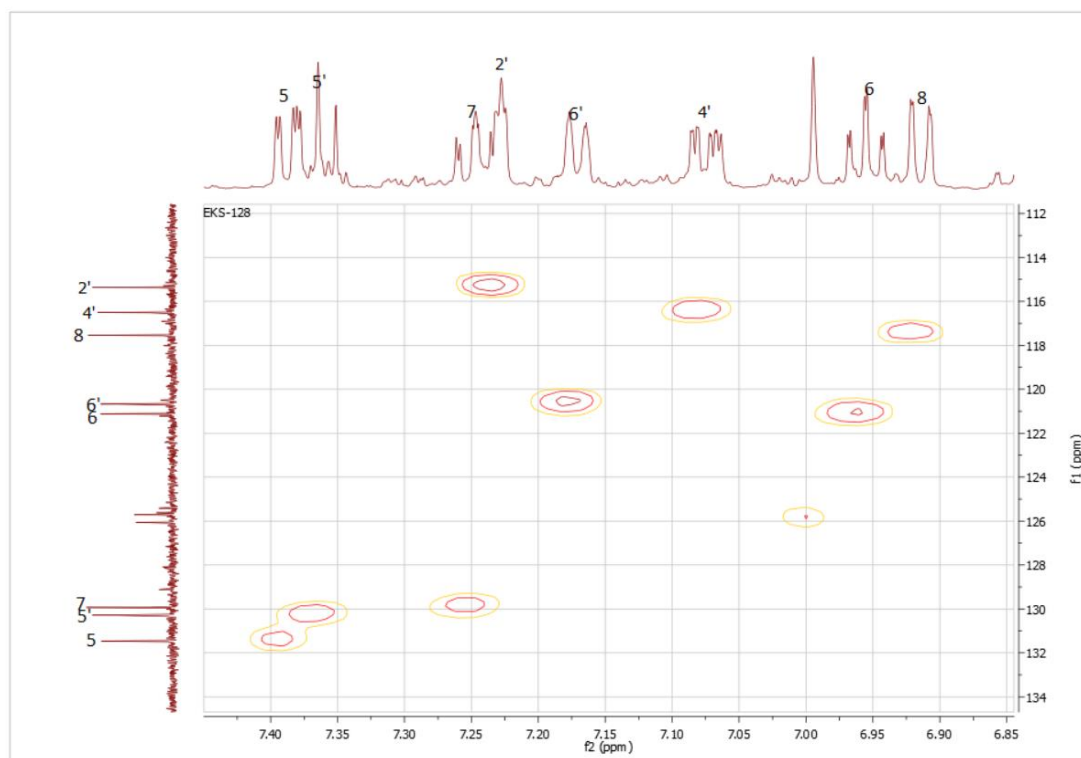
Figure S32.  $^1\text{H NMR}$  spectrum of flavan-4-ol 3'- $O$ - $\beta$ -D-(4''- $O$ -methyl)-glucopyranoside (2a) (Acetone- $d_6$ , 600 MHz)



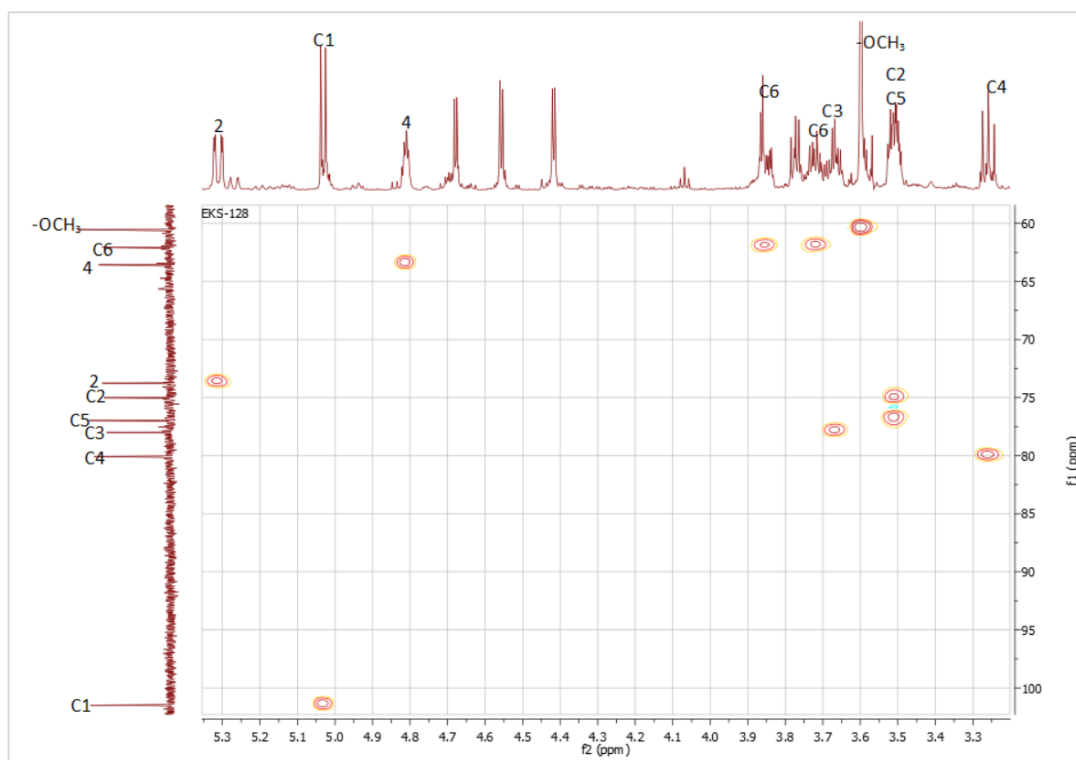
**Figure S33.** <sup>1</sup>H NMR spectrum of flavan-4-ol 3'-O-β-D-(4''-O-methyl)-glucopyranoside (2a) (Acetone-d<sub>6</sub>, 600 MHz)



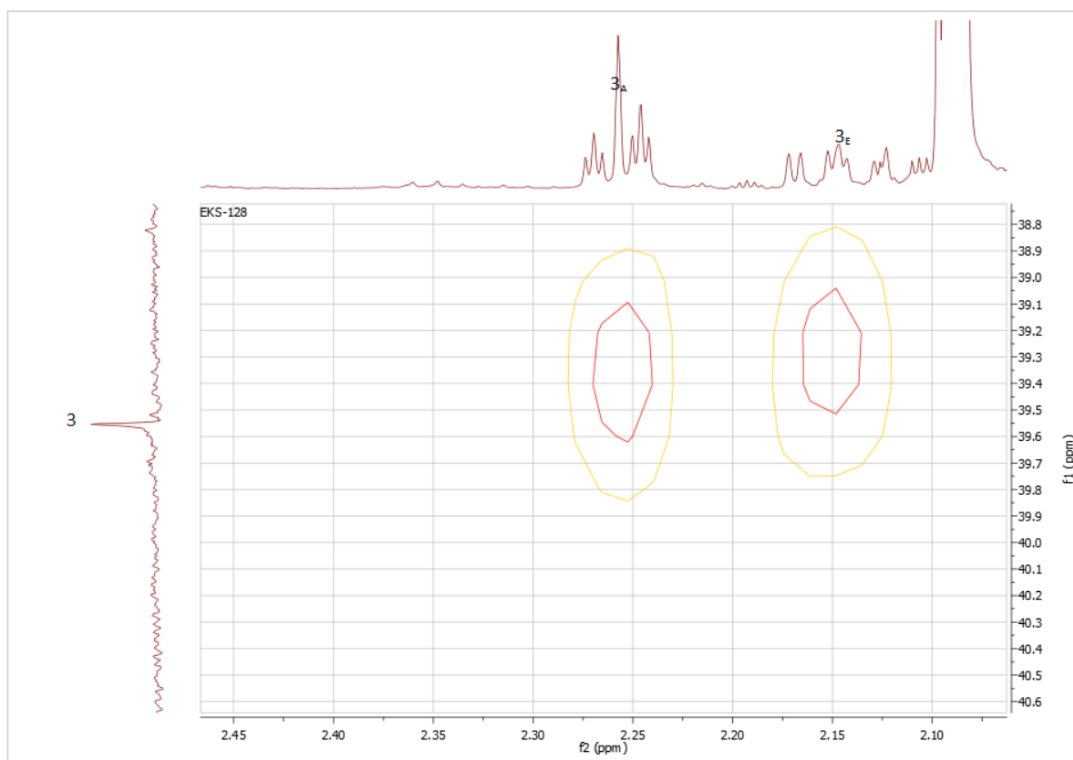
**Figure S34.** <sup>13</sup>C NMR spectrum of flavan-4-ol 3'-O-β-D-(4''-O-methyl)-glucopyranoside (2a) (Acetone-d<sub>6</sub>, 151 MHz)



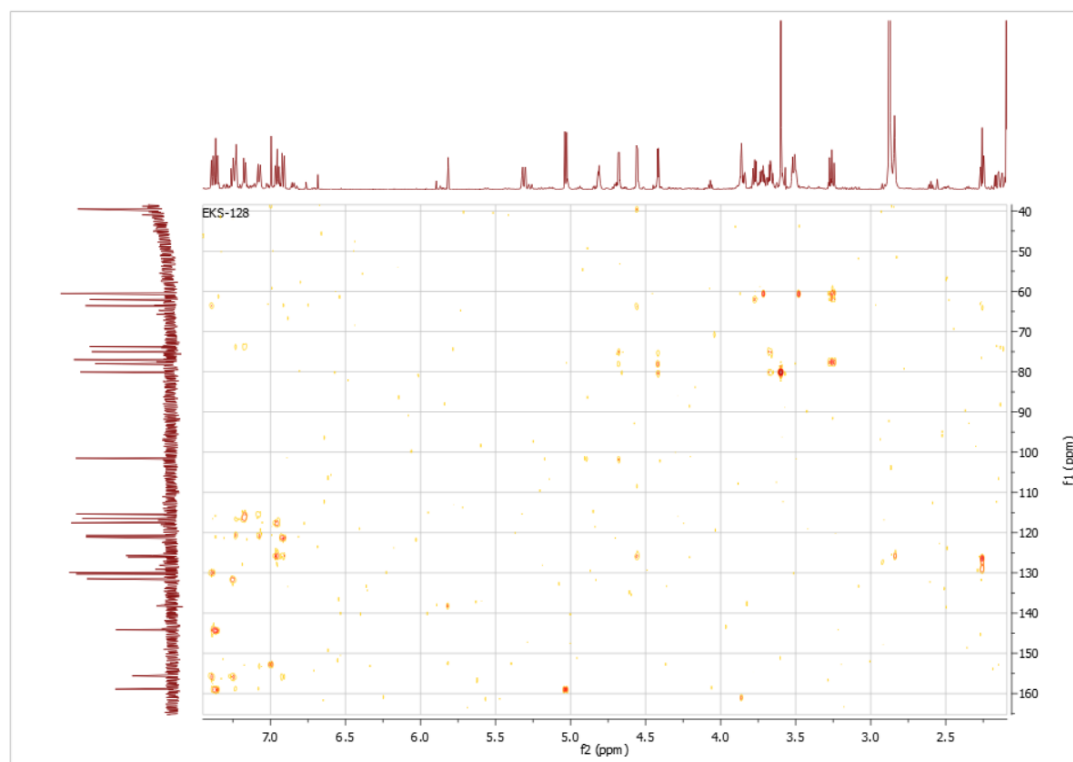
**Figure S35.** HSQC NMR spectrum of flavan-4-ol 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2a) (Acetone- $d_6$ , 151 MHz)



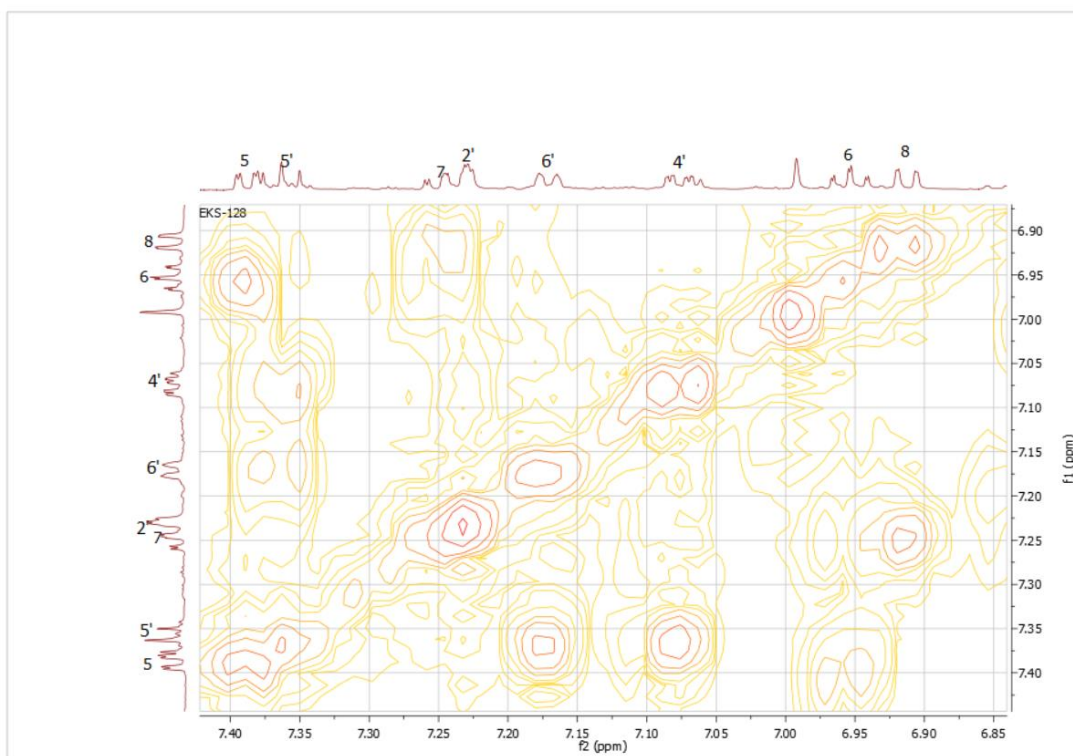
**Figure S36.** HSQC NMR spectrum of flavan-4-ol 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2a) (Acetone- $d_6$ , 151 MHz)



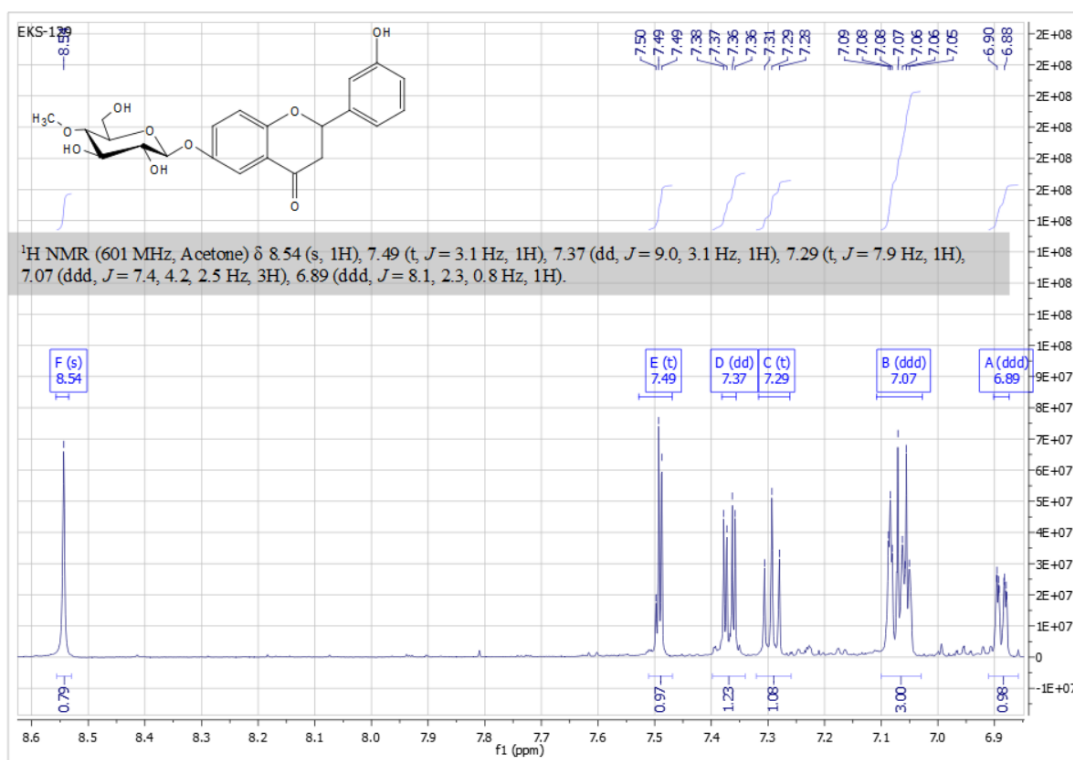
**Figure S37.** HSQC NMR spectrum of flavan-4-ol 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2a) (Acetone- $d_6$ , 151 MHz)



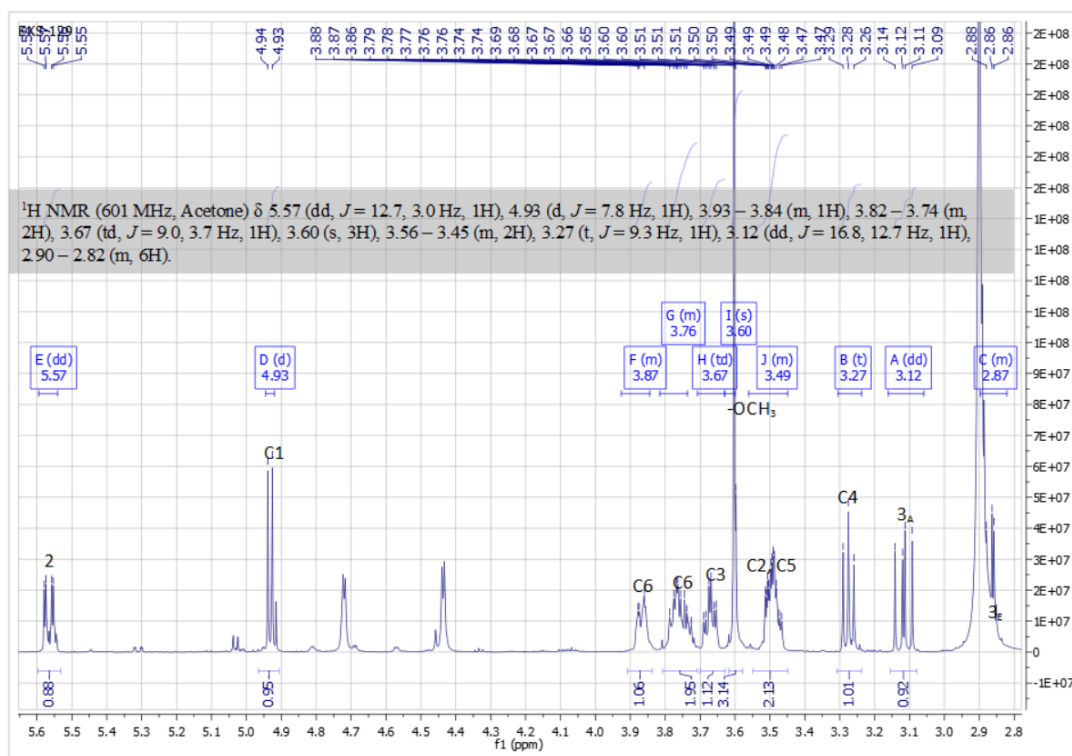
**Figure S38.** HMBC NMR spectrum of flavan-4-ol 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2a) (Acetone- $d_6$ , 151 MHz)



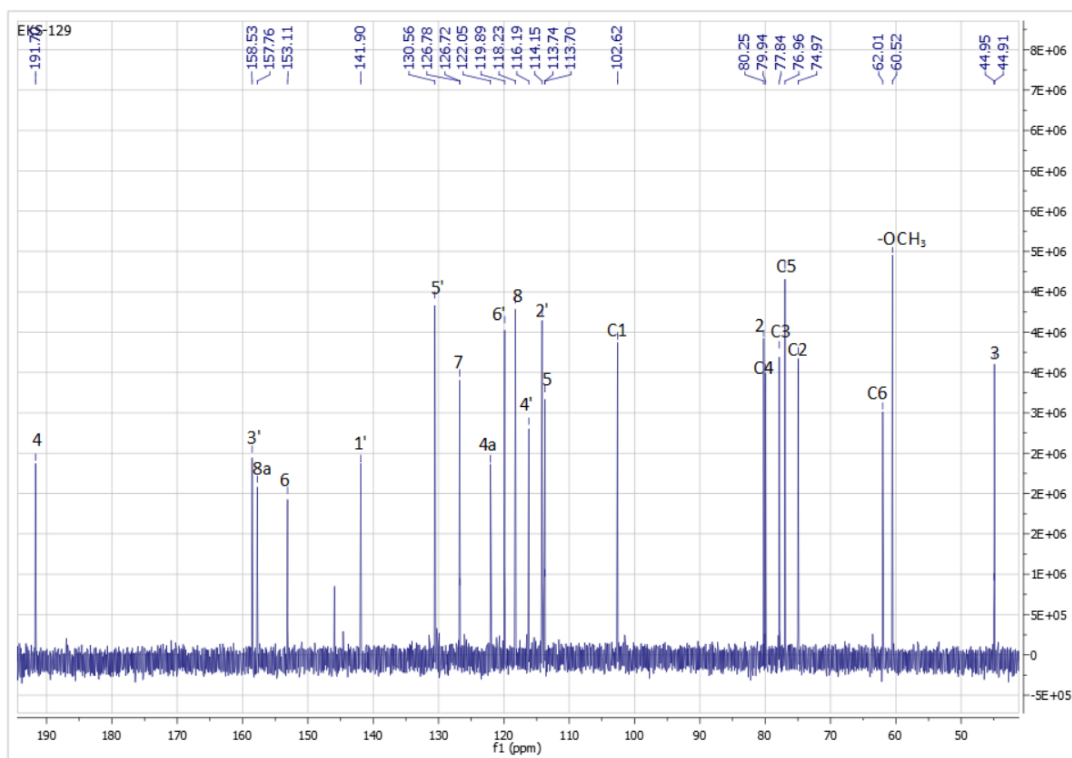
**Figure S39.** COSY NMR spectrum of flavan-4-ol 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2a) (Acetone- $d_6$ , 600 MHz)



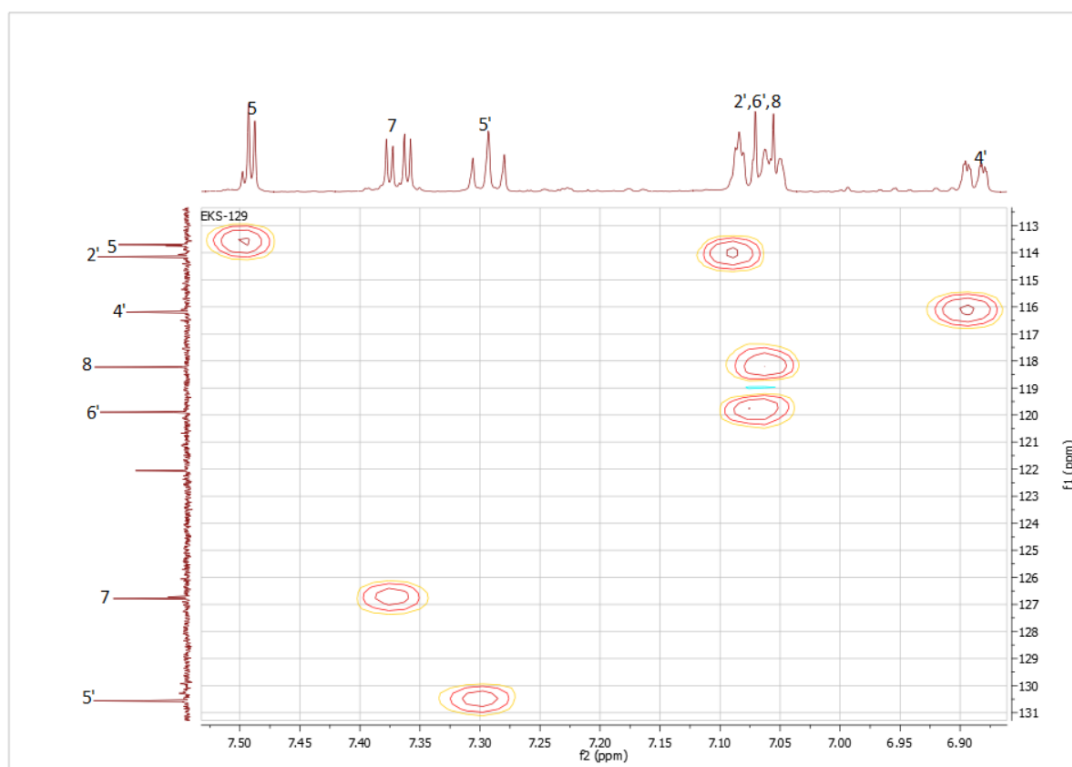
**Figure S40.** <sup>1</sup>H NMR spectrum of 3'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2b) (Acetone- $d_6$ , 600 MHz)



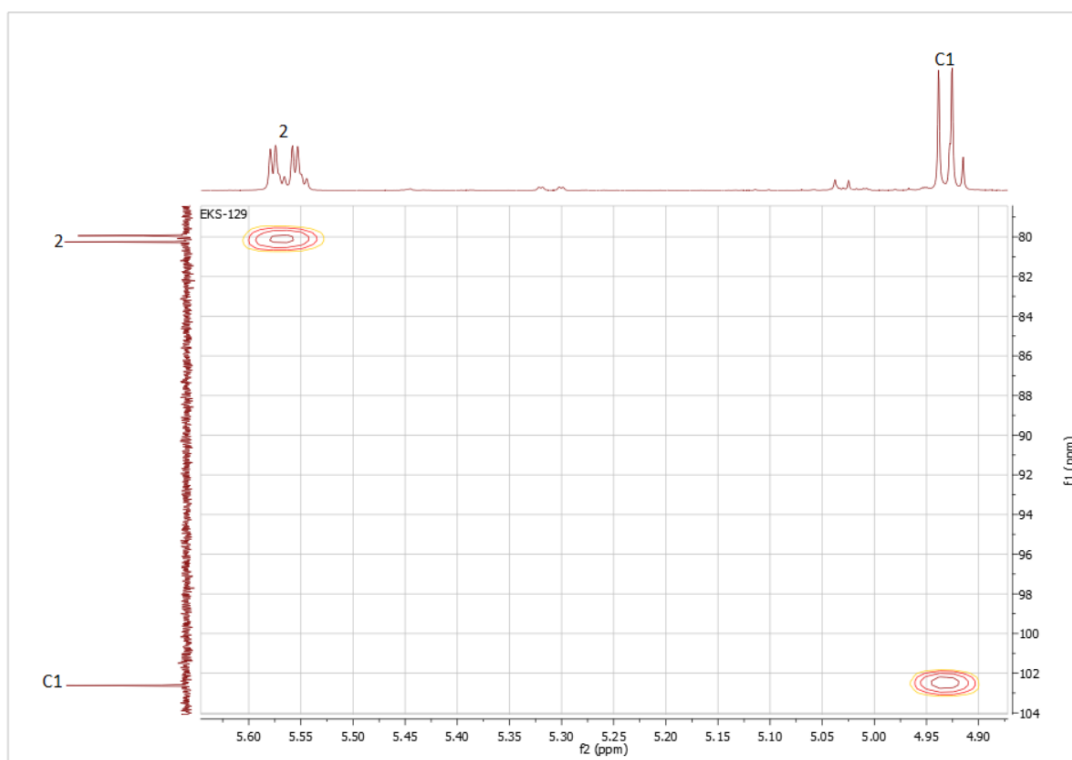
**Figure S41.** <sup>1</sup>H NMR spectrum of 3'-hydroxyflavanone 6-*O*-β-*D*-(4''-*O*-methyl)-glucopyranoside (2b) (Acetone-*d*<sub>6</sub>, 600 MHz)



**Figure S42.** <sup>13</sup>C NMR spectrum of 3'-hydroxyflavanone 6-*O*-β-*D*-(4''-*O*-methyl)-glucopyranoside (2b) (Acetone-*d*<sub>6</sub>, 151 MHz)

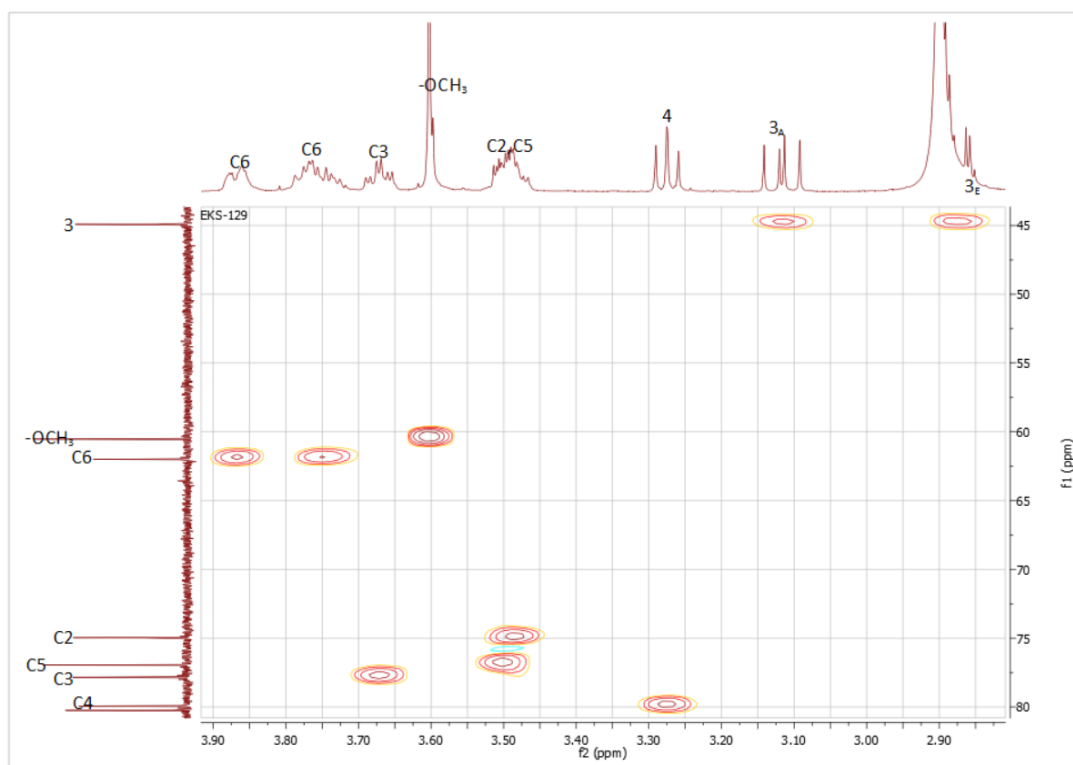


**Figure S43.** HSQC NMR spectrum of 3'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2b) (Acetone- $d_6$ , 151 MHz)

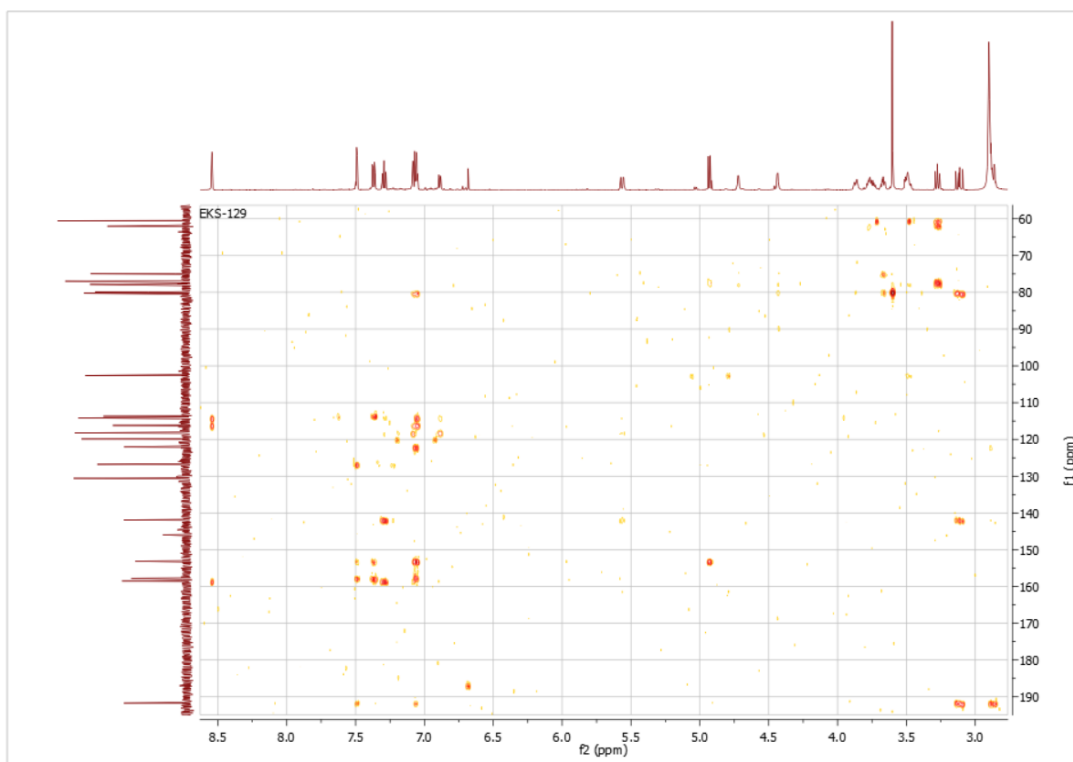


**Figure S44.** HSQC NMR spectrum of 3'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2b) (Acetone- $d_6$ , 151 MHz)

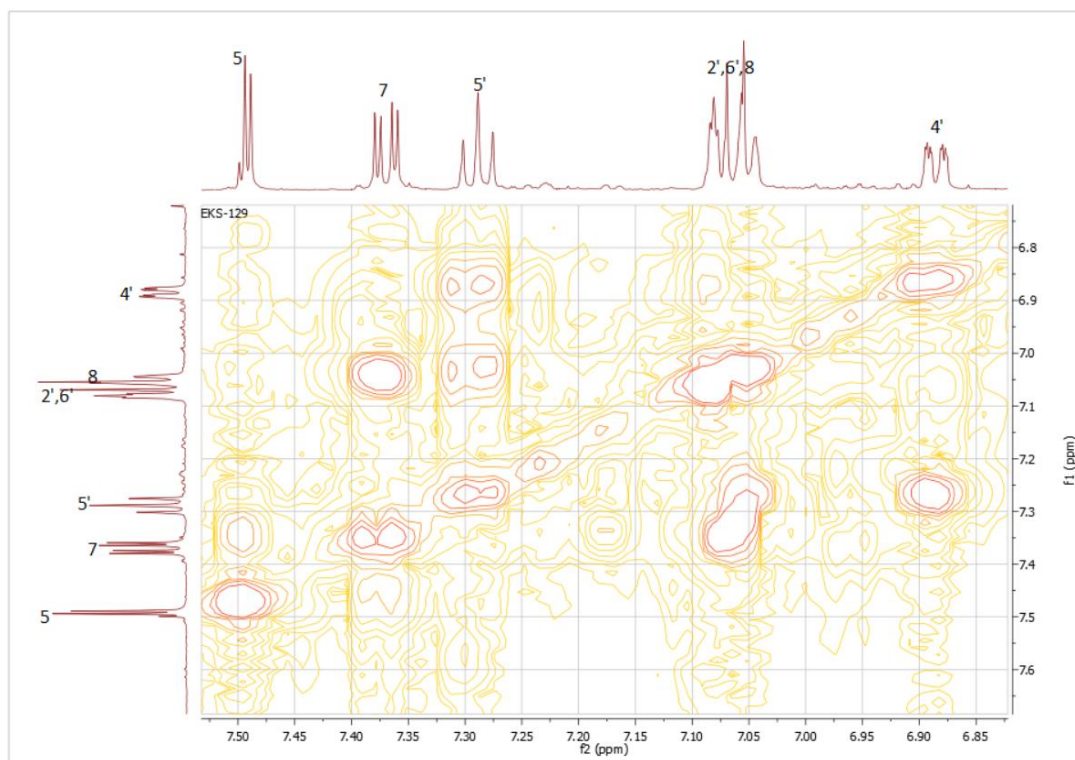




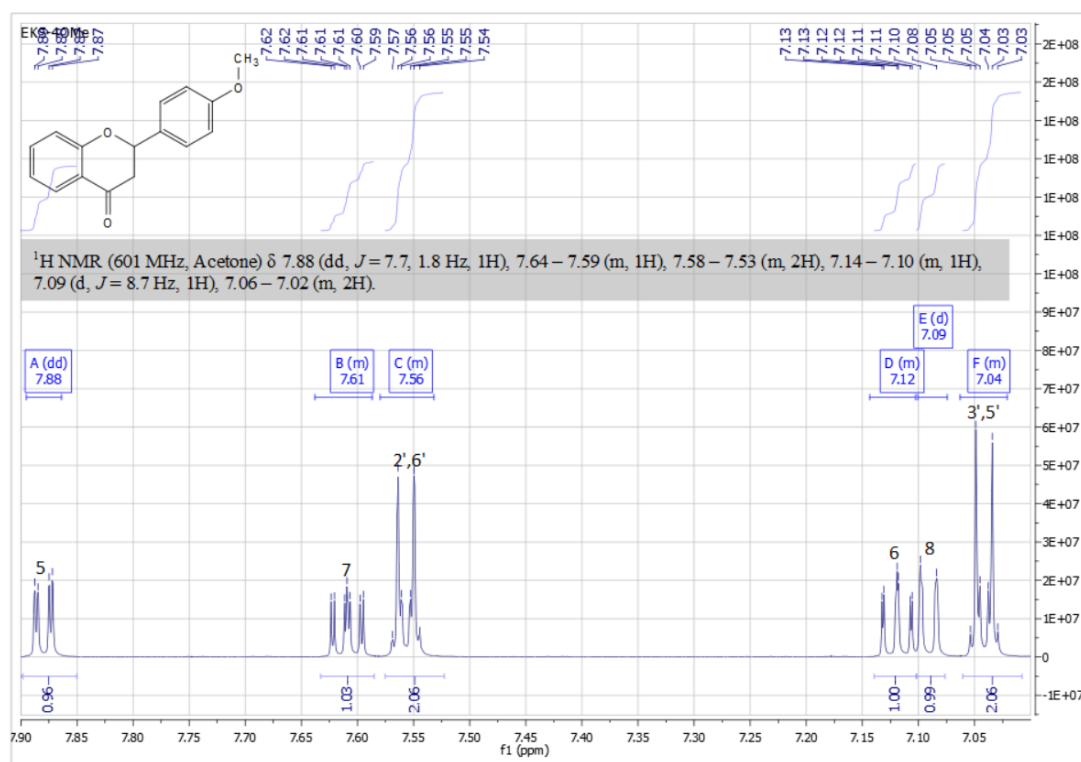
**Figure S45.** HSQC NMR spectrum of 3'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2b) (Acetone- $d_6$ , 151 MHz)



**Figure S46.** HMBC NMR spectrum of 3'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2b) (Acetone- $d_6$ , 151 MHz)



**Figure S47.** COSY NMR spectrum of 3'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (2b) (Acetone- $d_6$ , 600 MHz)



**Figure S48.**  $^1\text{H}$  NMR spectrum of 4'-methoxyflavanone (3) (Acetone- $d_6$ , 600 MHz)

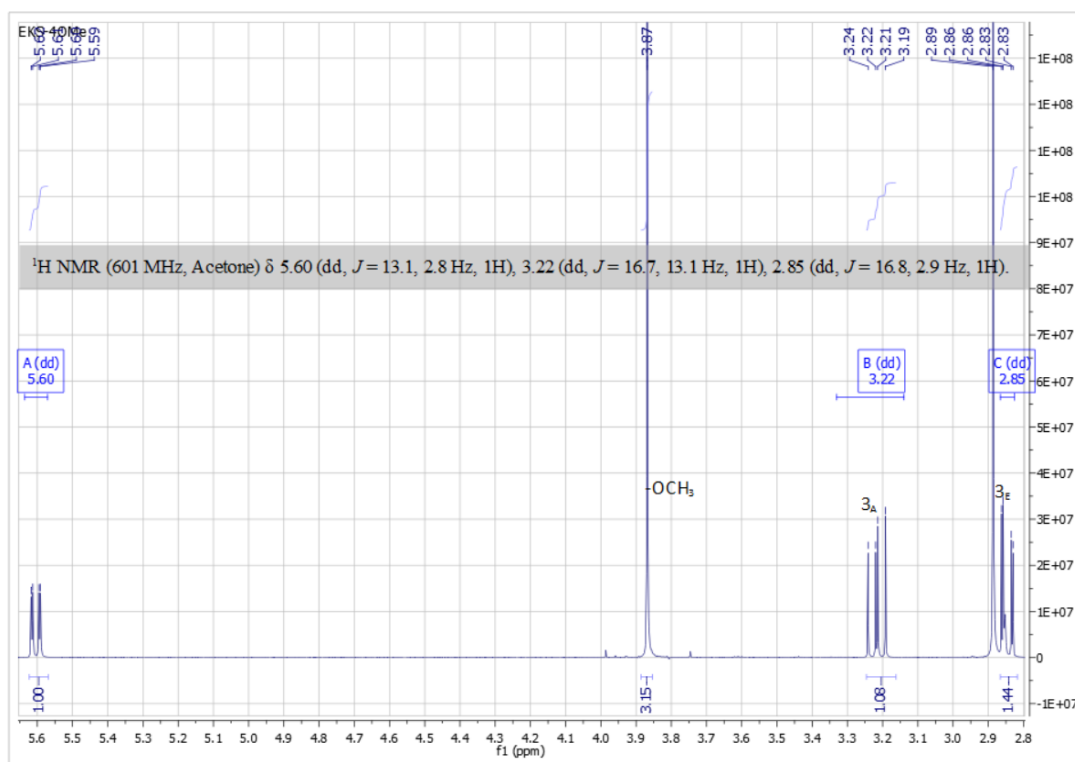


Figure S49. <sup>1</sup>H NMR spectrum of 4'-methoxyflavanone (3) (Acetone-d<sub>6</sub>, 600 MHz)

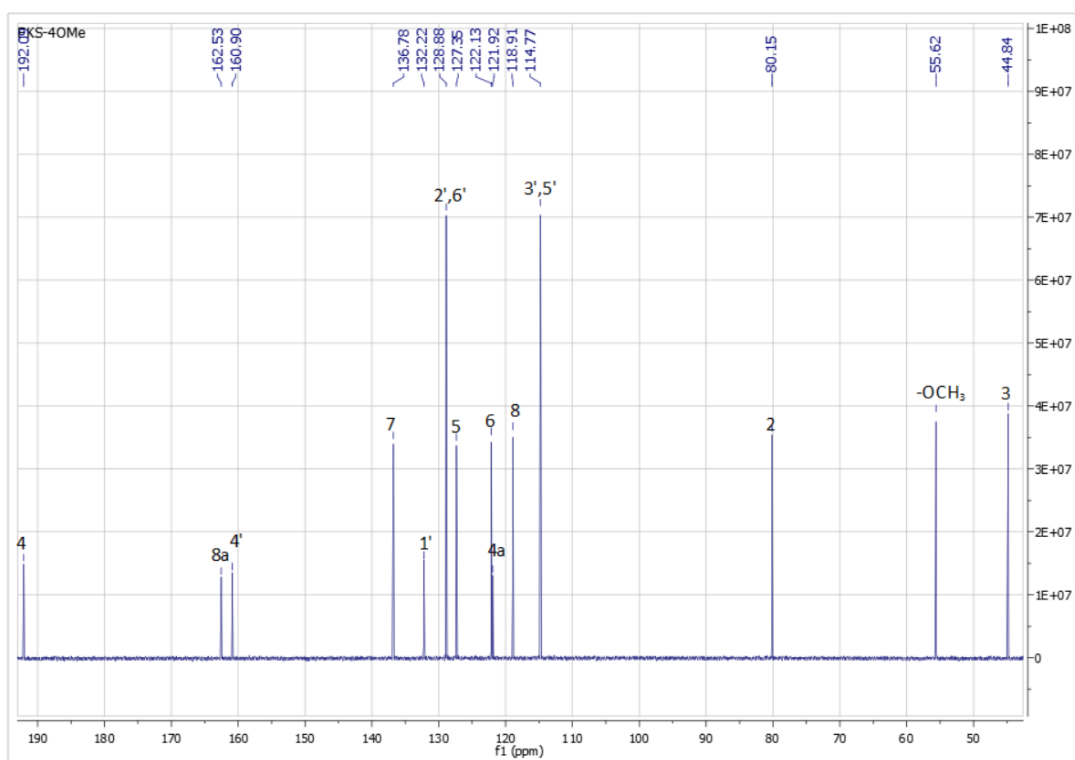
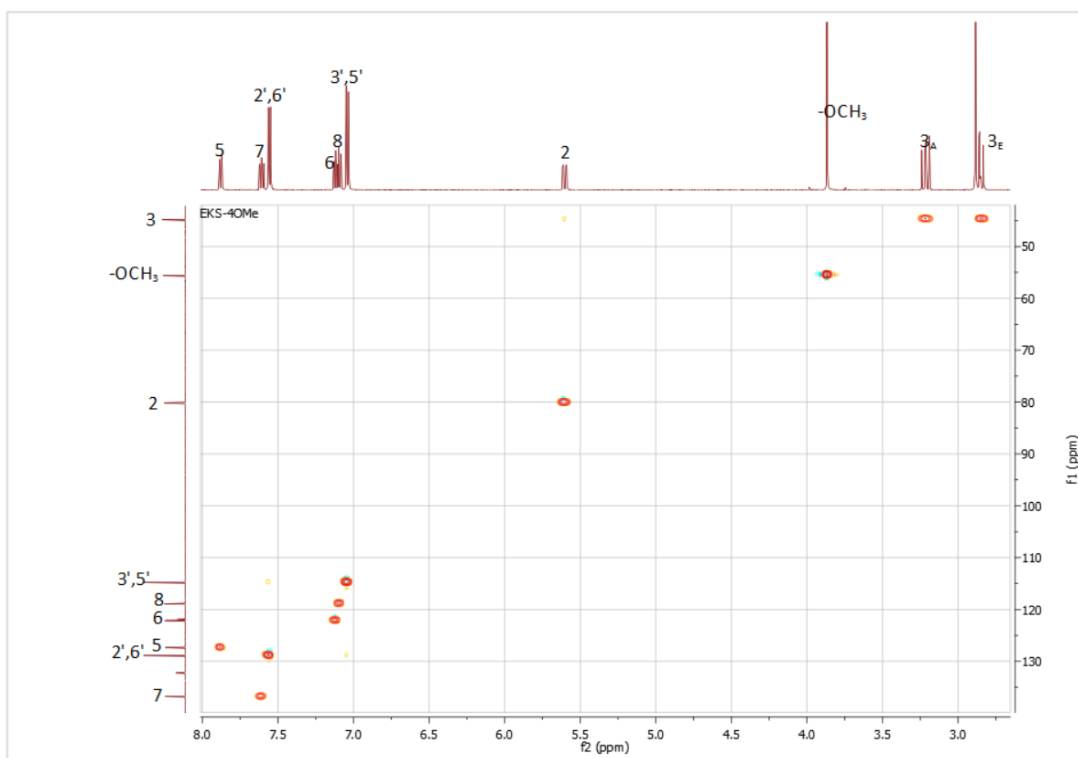
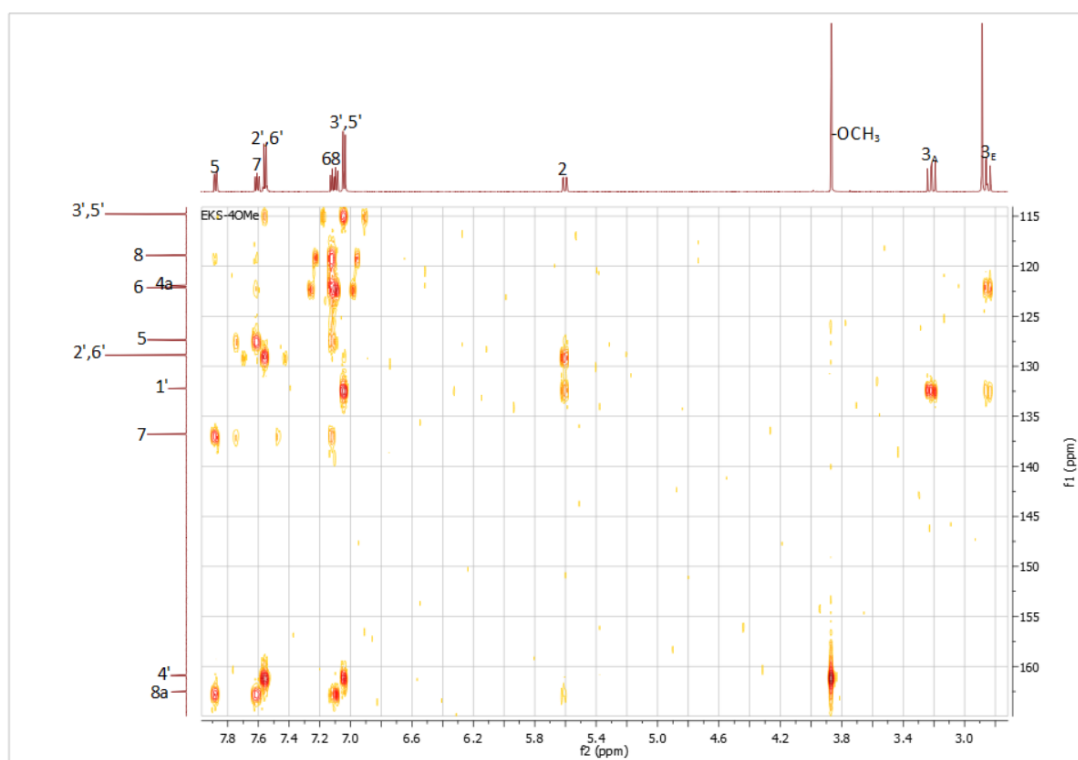


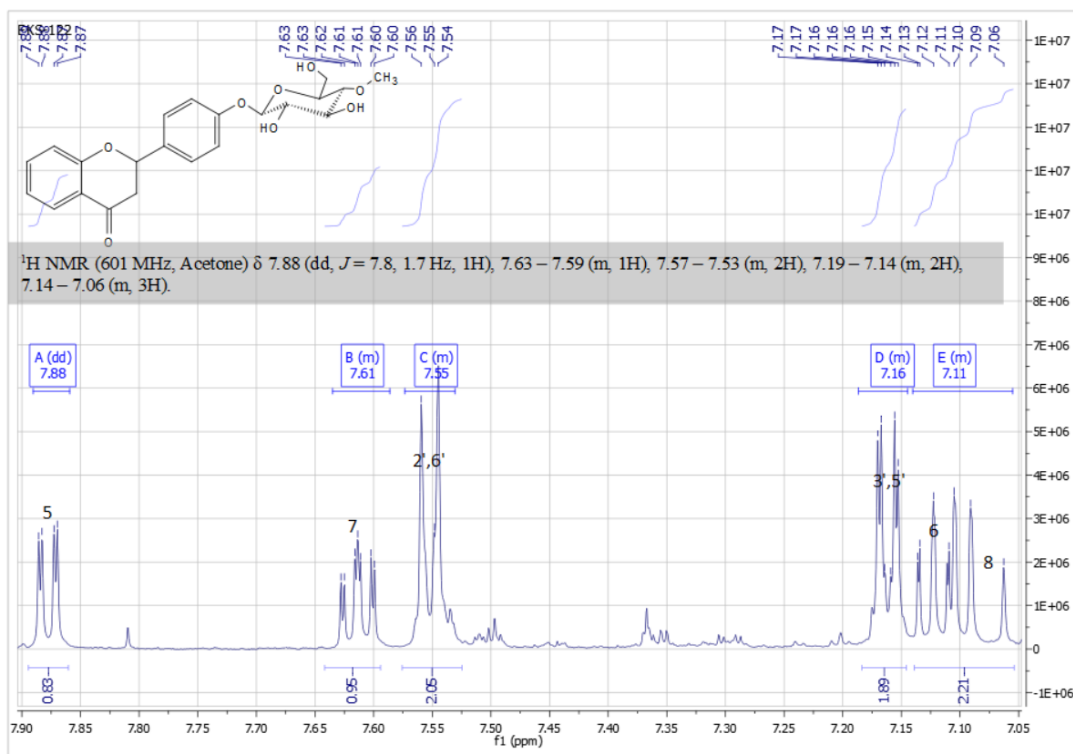
Figure S50. <sup>13</sup>C NMR spectrum of 4'-methoxyflavanone (3) (Acetone-d<sub>6</sub>, 151 MHz)



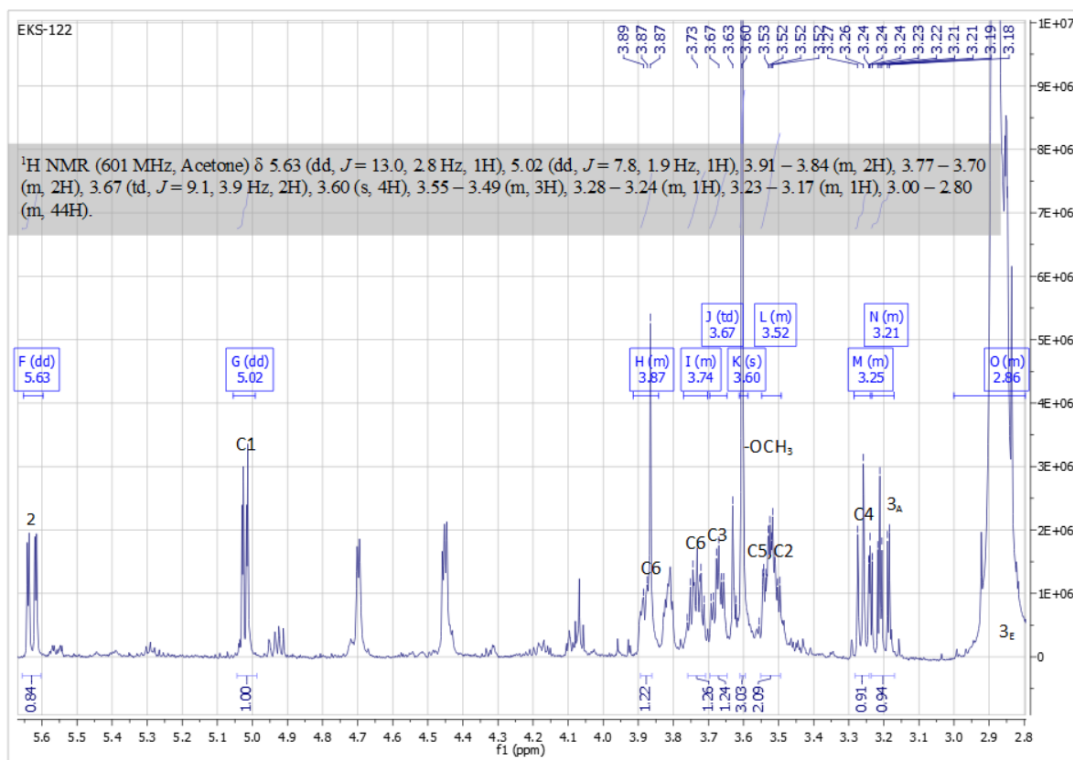
**Figure S51.** HSQC NMR spectrum of 4'-methoxyflavanone (3) (Acetone-d<sub>6</sub>, 151 MHz)



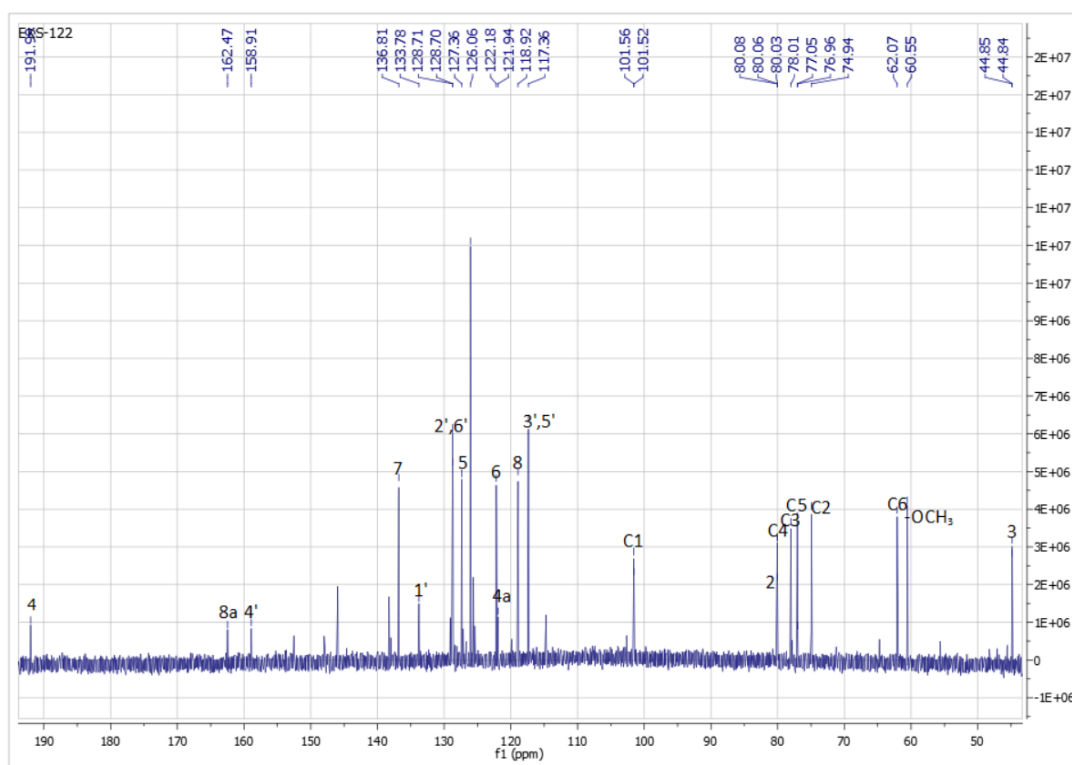
**Figure S52.** HMBC NMR spectrum of 4'-methoxyflavanone (3) (Acetone-d<sub>6</sub>, 151 MHz)



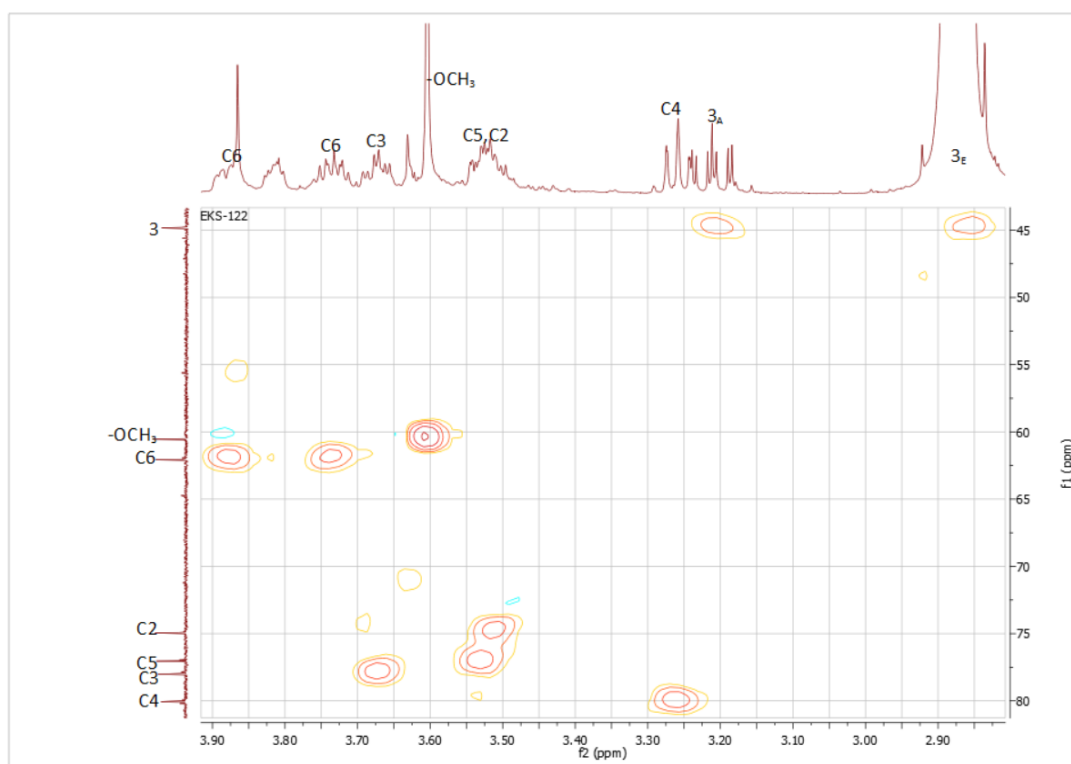
**Figure S53.** <sup>1</sup>H NMR spectrum of flavanone 4'-O-β-D-(4''-O-methyl)-glucopyranoside (3a) (Acetone-d<sub>6</sub>, 600 MHz)



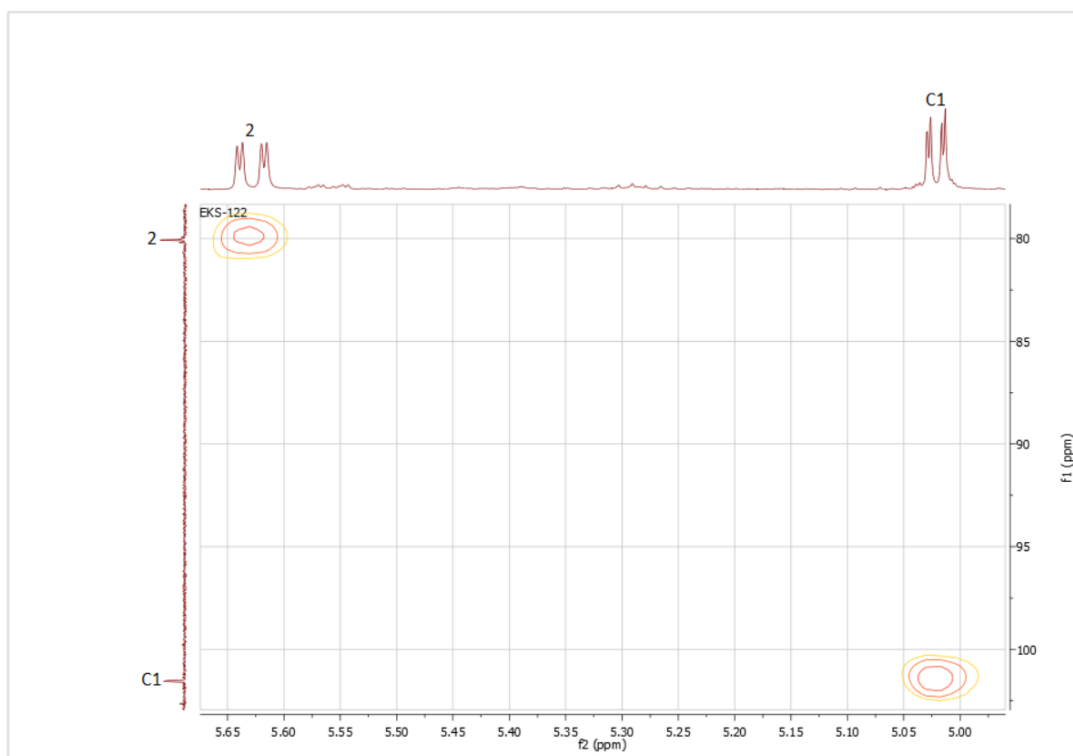
**Figure S54.** <sup>1</sup>H NMR spectrum of flavanone 4'-O-β-D-(4''-O-methyl)-glucopyranoside (3a) (Acetone-d<sub>6</sub>, 600 MHz)



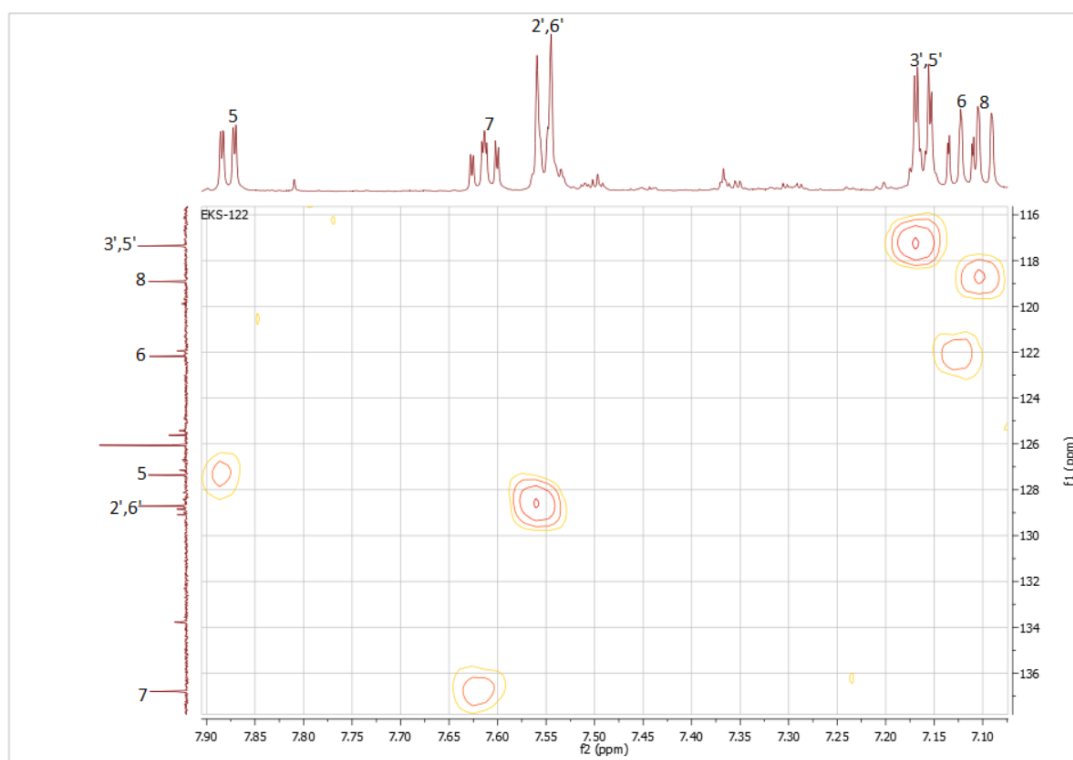
**Figure S55.**  $^{13}\text{C}$  NMR spectrum of flavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3a) (Acetone- $d_6$ , 151 MHz)



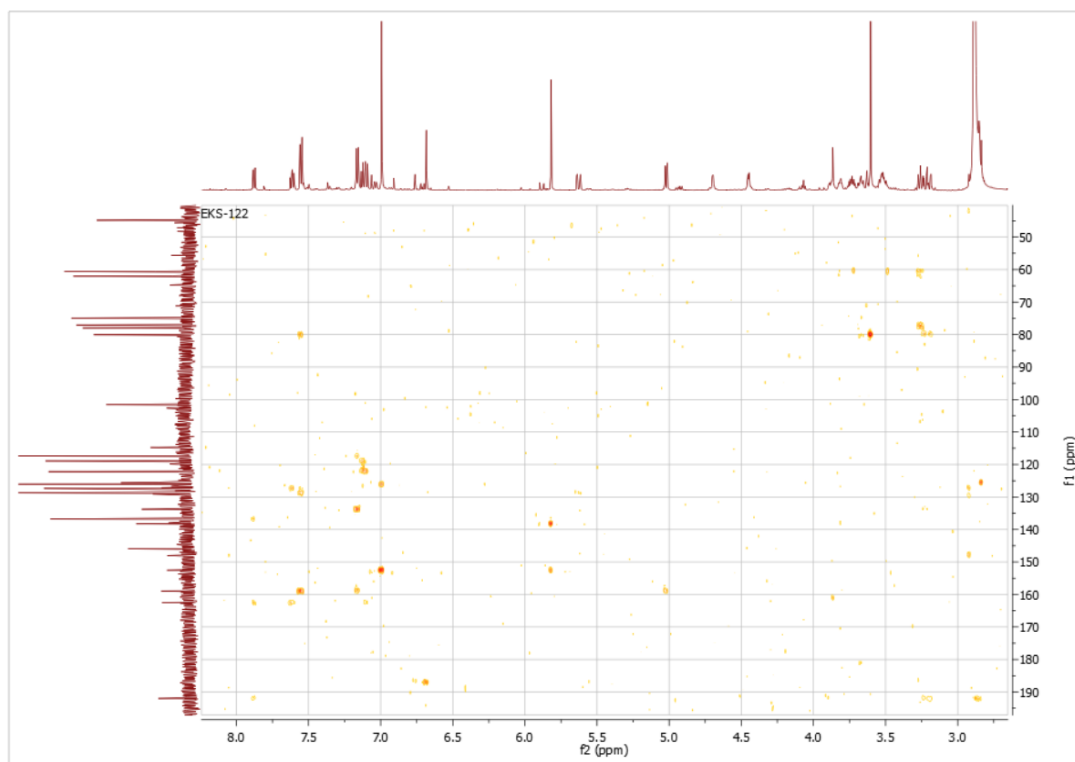
**Figure S56.** HSQC NMR spectrum of flavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3a) (Acetone- $d_6$ , 151 MHz)



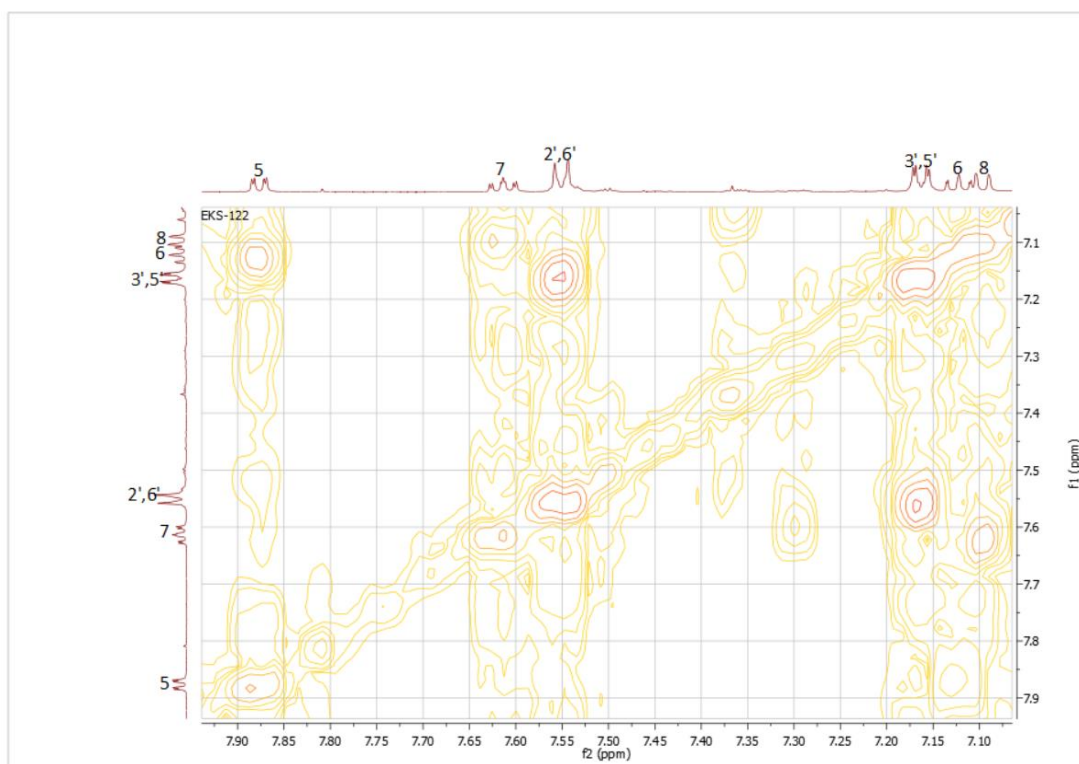
**Figure S57.** HSQC NMR spectrum of flavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3a) (Acetone- $d_6$ , 151 MHz)



**Figure S58.** HSQC NMR spectrum of flavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3a) (Acetone- $d_6$ , 151 MHz)

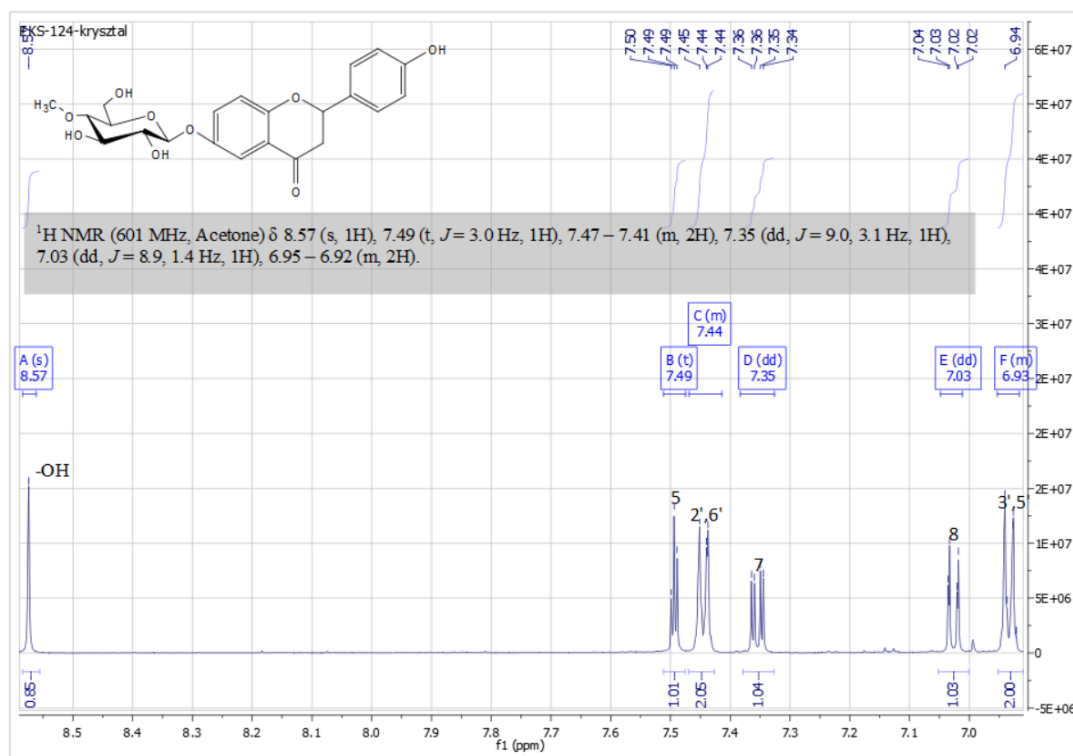


**Figure S59.** HMBC NMR spectrum of flavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3a) (Acetone- $d_6$ , 151 MHz)

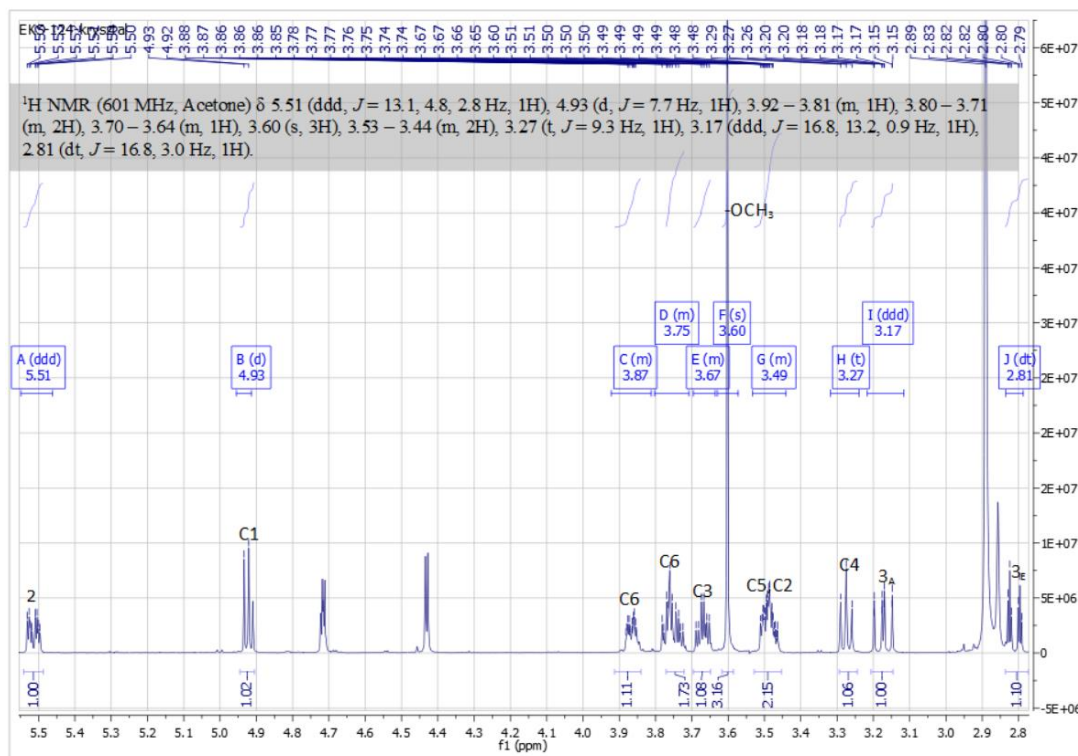


**Figure S60.** COSY NMR spectrum of flavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3a) (Acetone- $d_6$ , 600 MHz)

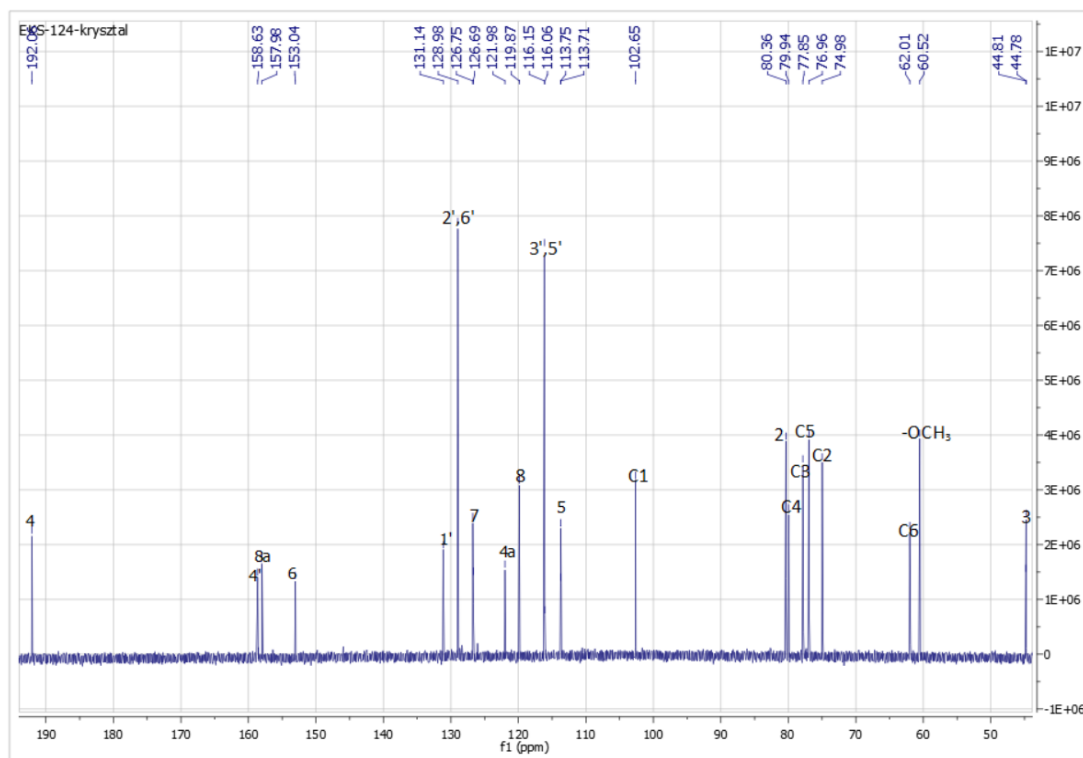




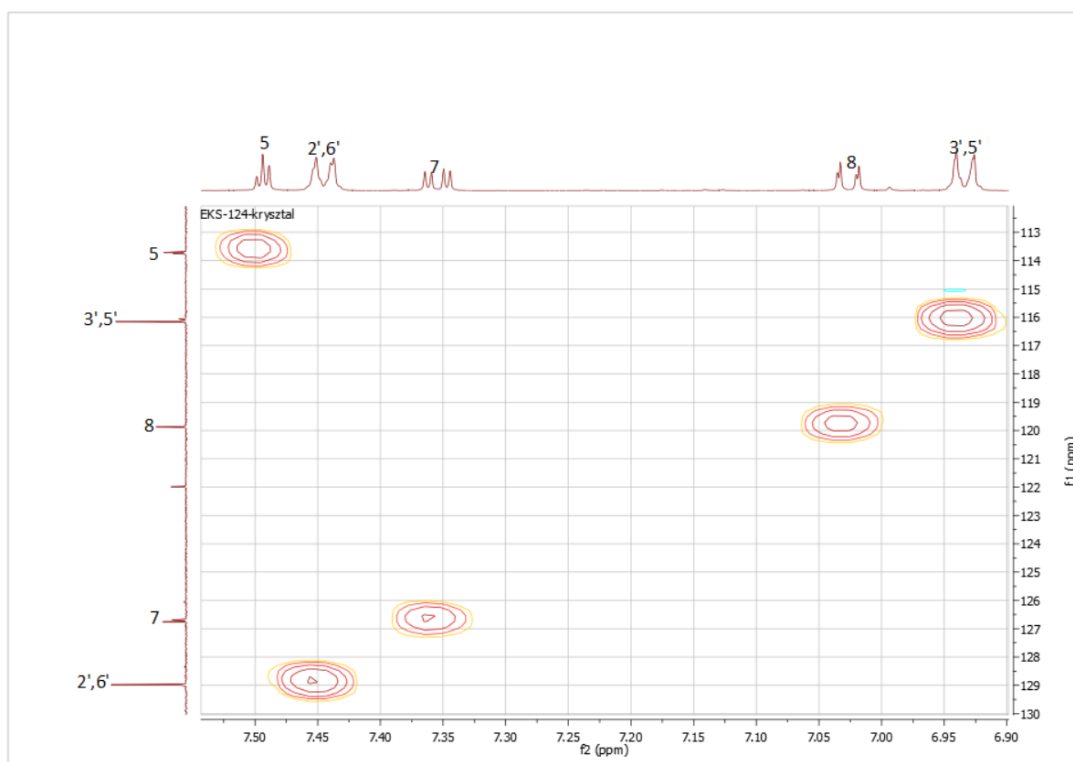
**Figure S61.** <sup>1</sup>H NMR spectrum of 4'-hydroxyflavanone 6-O-β-D-(4''-O-methyl)-glucopyranoside (3b) (Acetone-d<sub>6</sub>, 600 MHz)



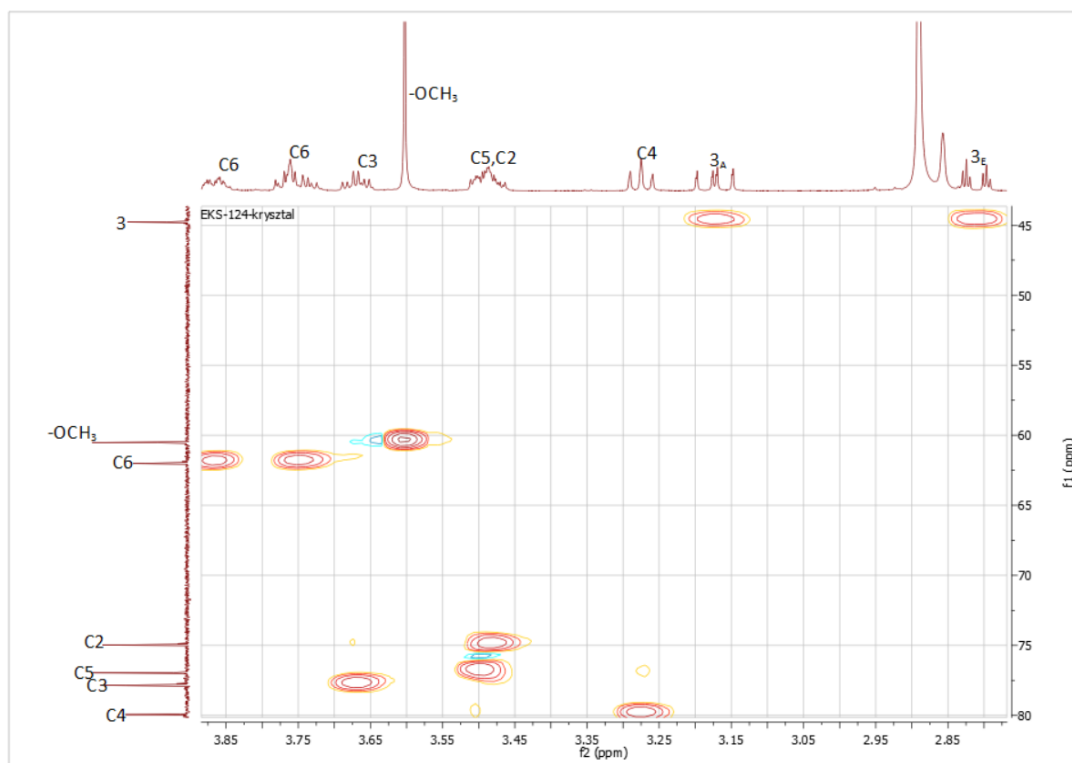
**Figure S62.** <sup>1</sup>H NMR spectrum of 4'-hydroxyflavanone 6-O-β-D-(4''-O-methyl)-glucopyranoside (3b) (Acetone-d<sub>6</sub>, 600 MHz)



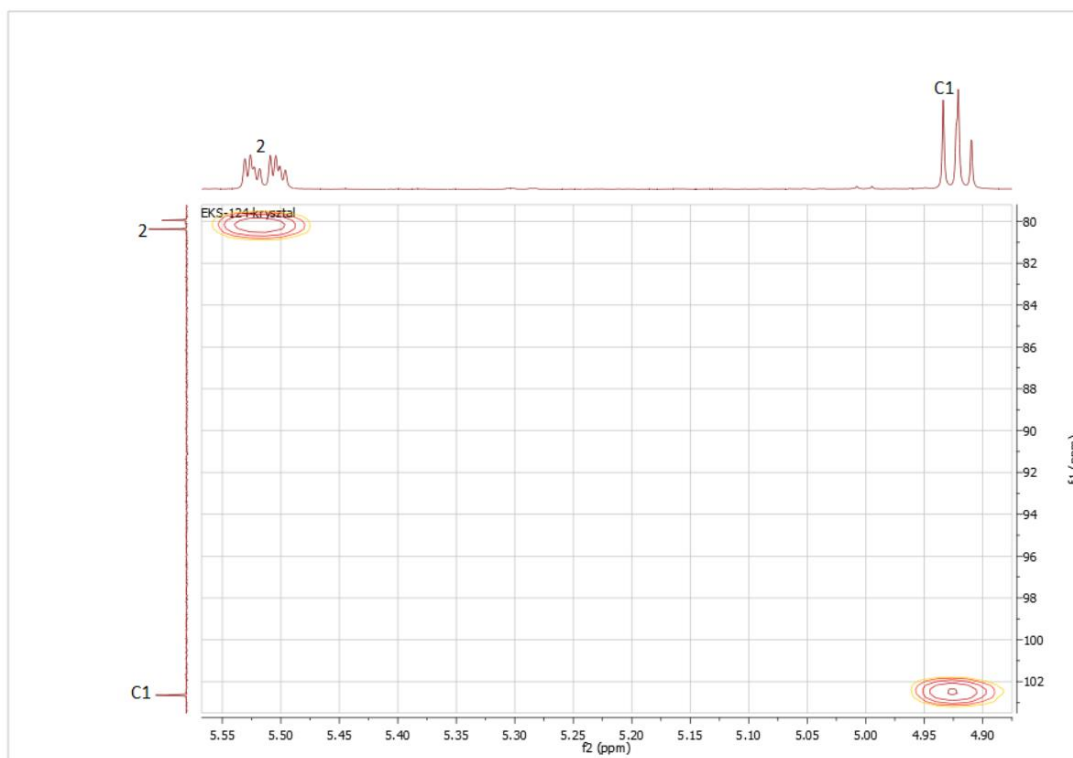
**Figure S63.**  $^{13}\text{C}$  NMR spectrum of 4'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3b) (Acetone- $d_6$ , 151 MHz)



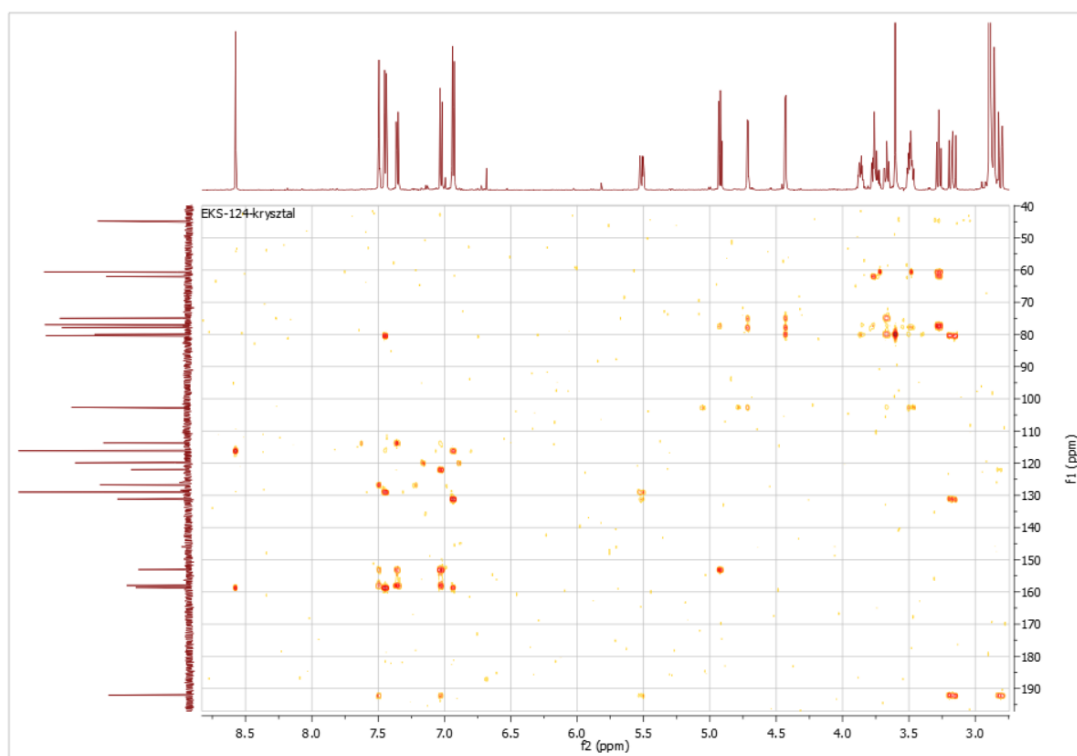
**Figure S64.** HSQC NMR spectrum of 4'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3b) (Acetone- $d_6$ , 151 MHz)



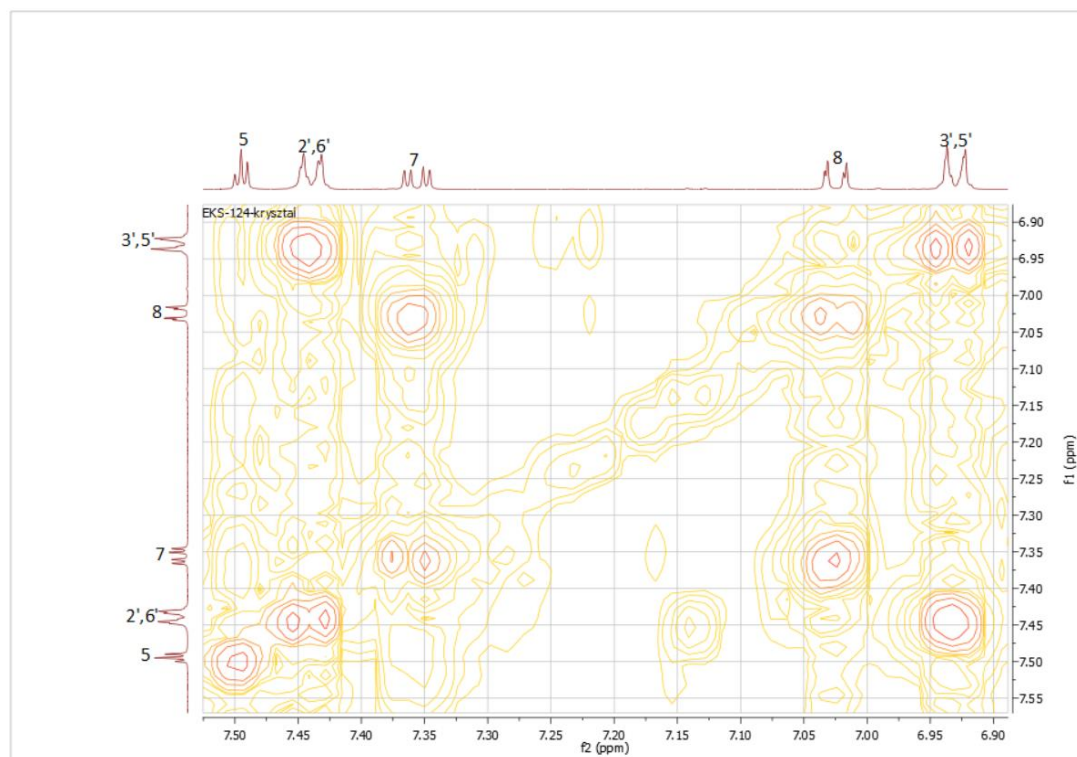
**Figure S65.** HSQC NMR spectrum of 4'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3b) (Acetone- $d_6$ , 151 MHz)



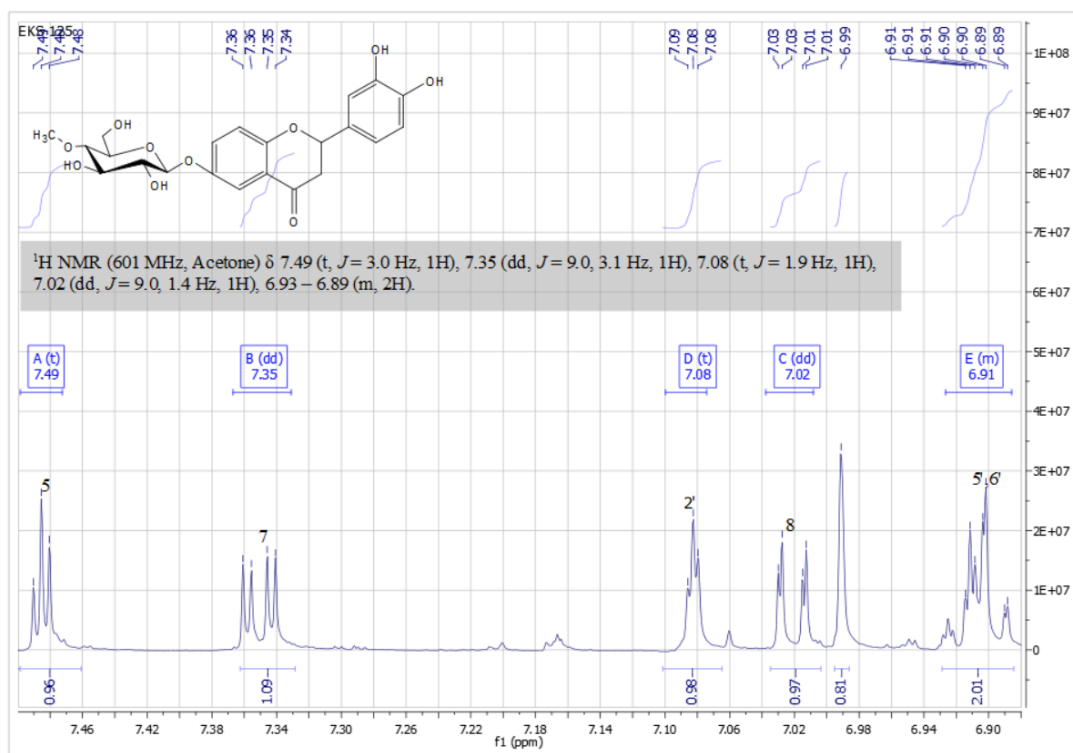
**Figure S66.** HSQC NMR spectrum of 4'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3b) (Acetone- $d_6$ , 151 MHz)



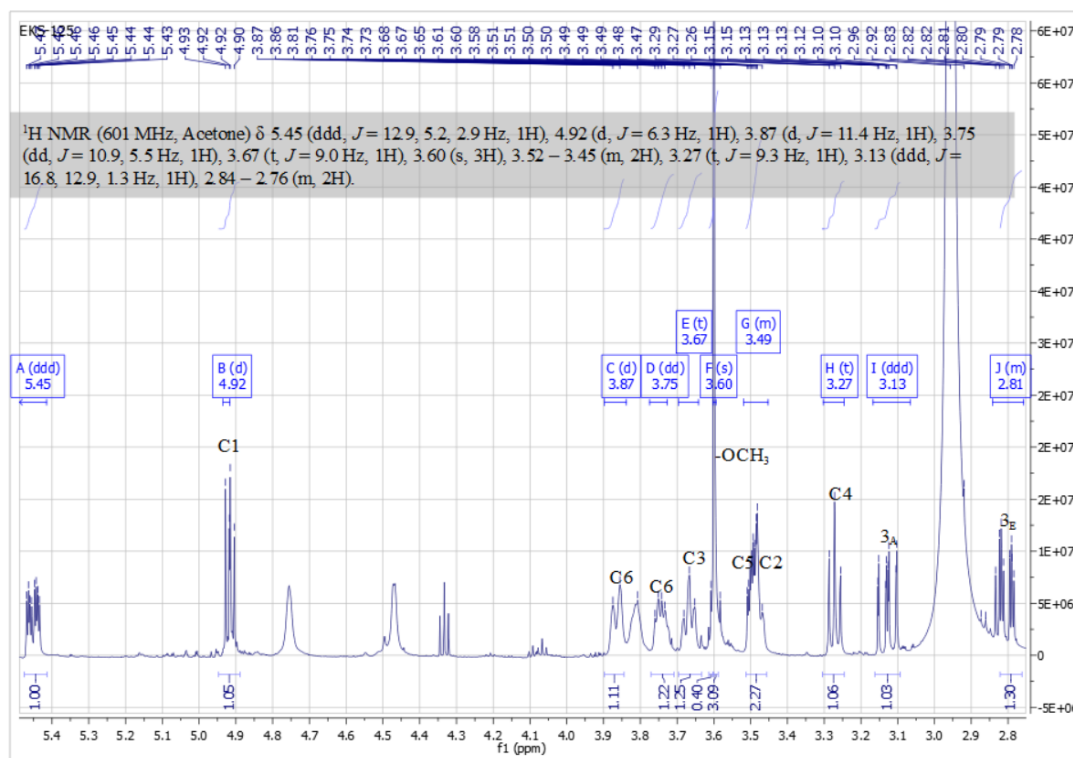
**Figure S67.** HMBC NMR spectrum of 4'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3b) (Acetone- $d_6$ , 151 MHz)



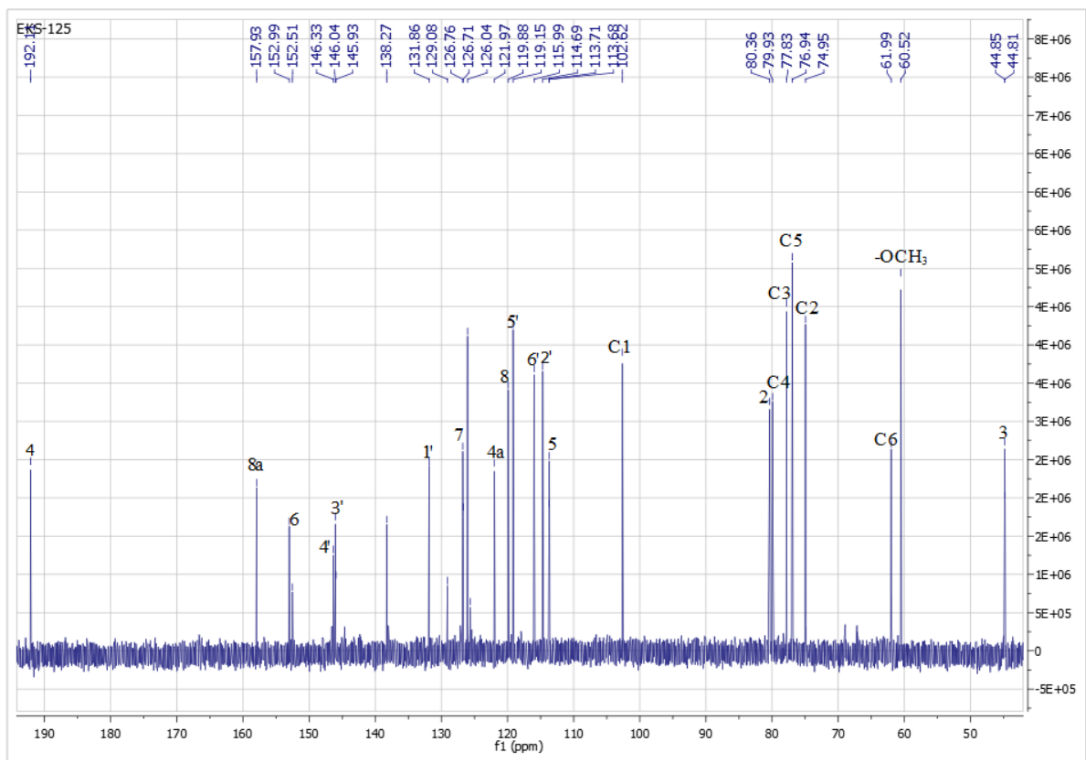
**Figure S68.** COSY NMR spectrum of 4'-hydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3b) (Acetone- $d_6$ , 600 MHz)



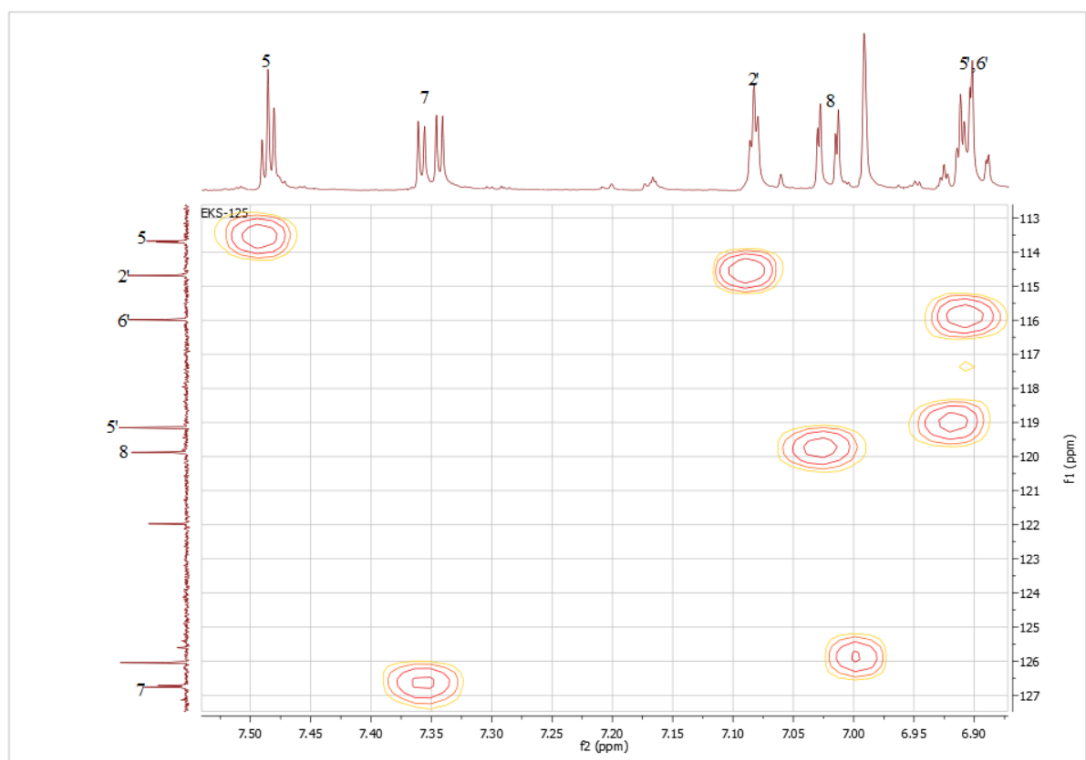
**Figure S69.** <sup>1</sup>H NMR spectrum of 3',4'-dihydroxyflavanone 6-*O*-β-*D*-(4''-*O*-methyl)-glucopyranoside (3c) (Acetone-*d*<sub>6</sub>, 600 MHz)



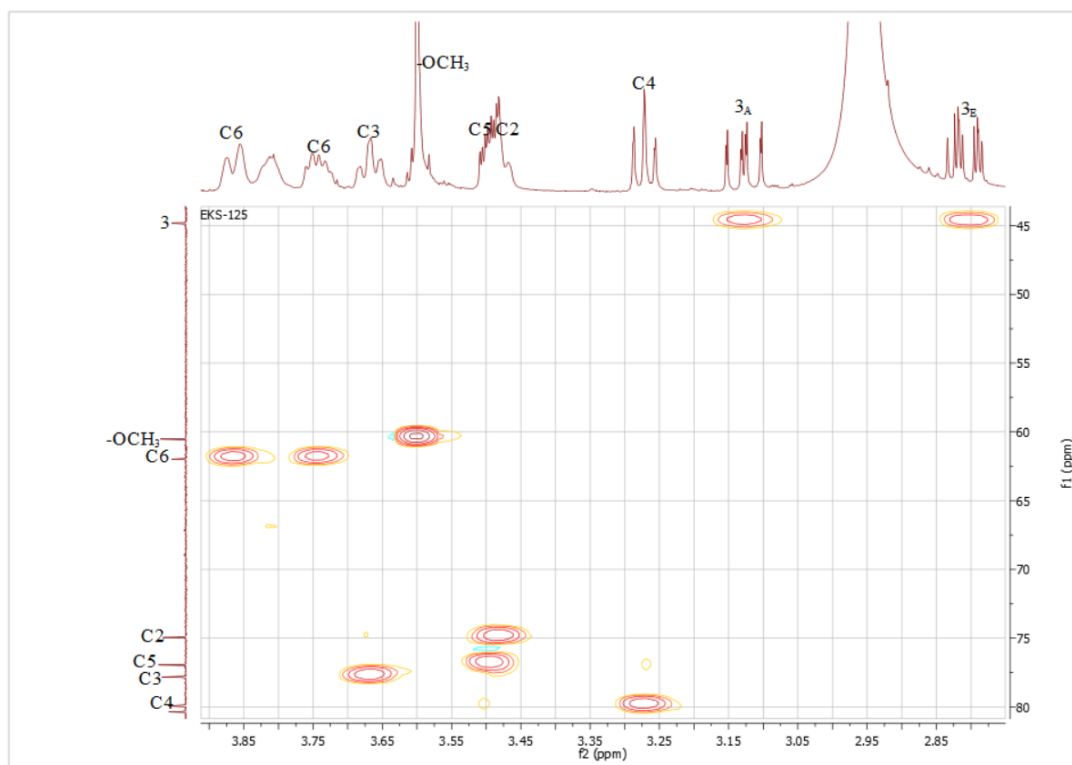
**Figure S70.** <sup>1</sup>H NMR spectrum of 3',4'-dihydroxyflavanone 6-*O*-β-*D*-(4''-*O*-methyl)-glucopyranoside (3c) (Acetone-*d*<sub>6</sub>, 600 MHz)



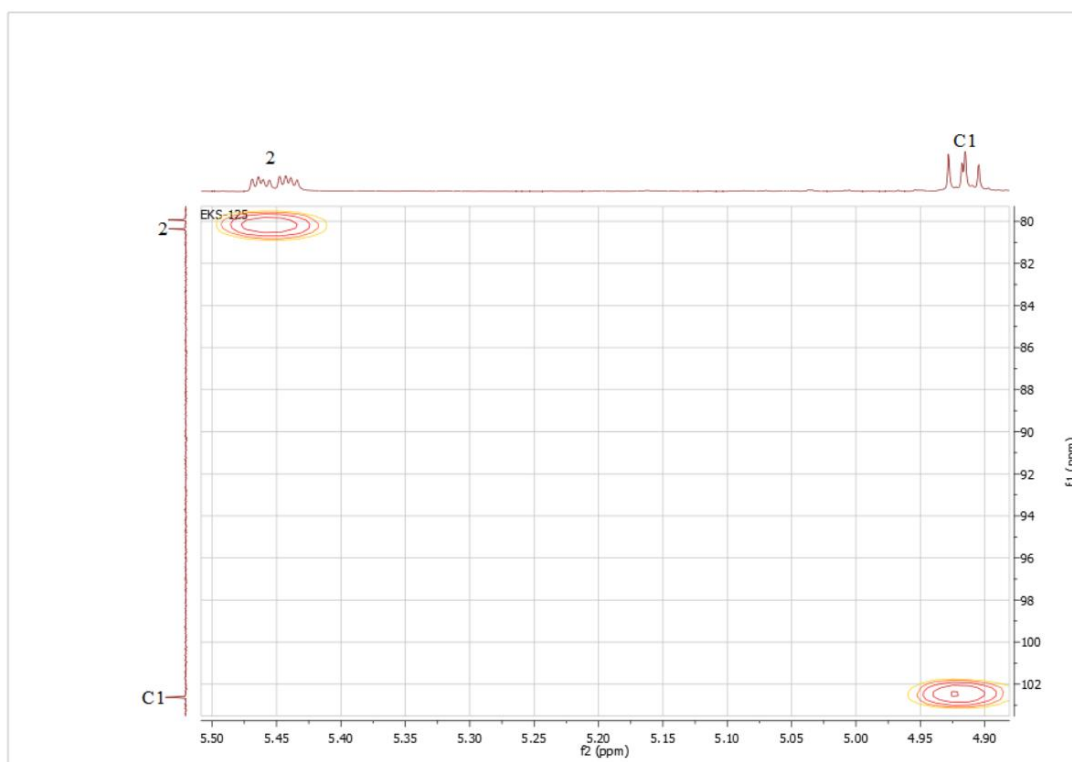
**Figure S71.**  $^{13}\text{C}$  NMR spectrum of 3',4'-dihydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3c) (Acetone- $d_6$ , 151 MHz)



**Figure S72.** HSQC NMR spectrum of 3',4'-dihydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3c) (Acetone- $d_6$ , 151 MHz)

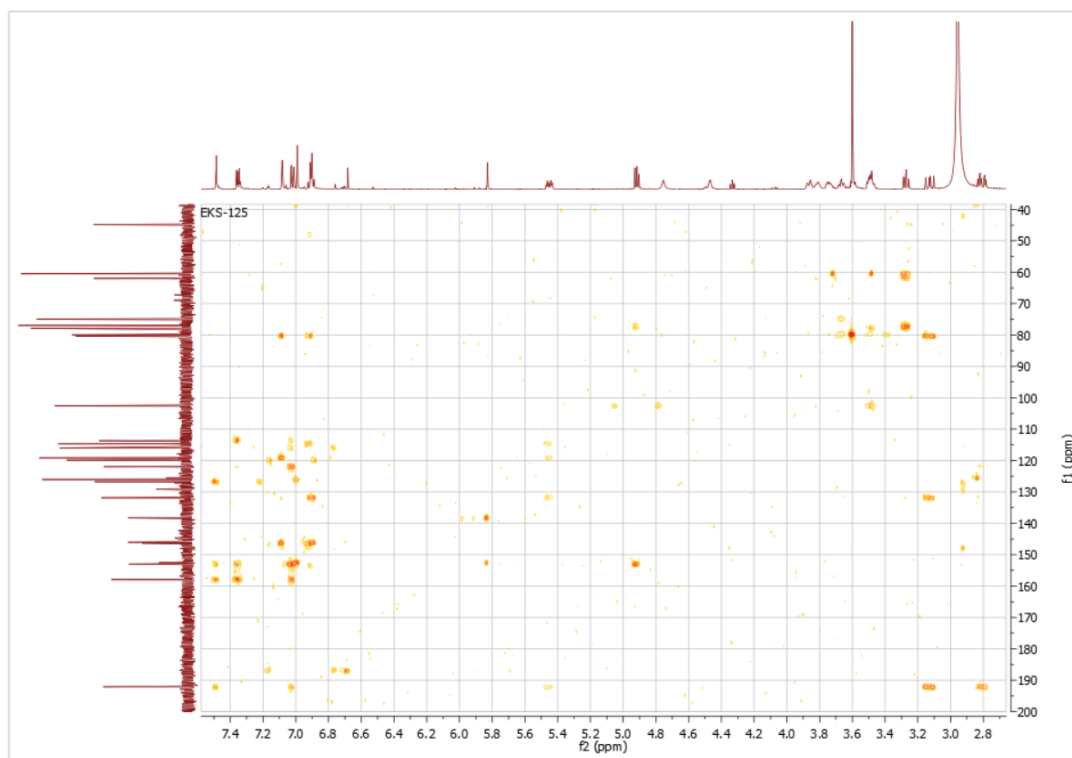


**Figure S73.** HSQC NMR spectrum of 3',4'-dihydroxyflavanone 6-O-β-D-(4''-O-methyl)-glucopyranoside (3c) (Acetone-d<sub>6</sub>, 151 MHz)

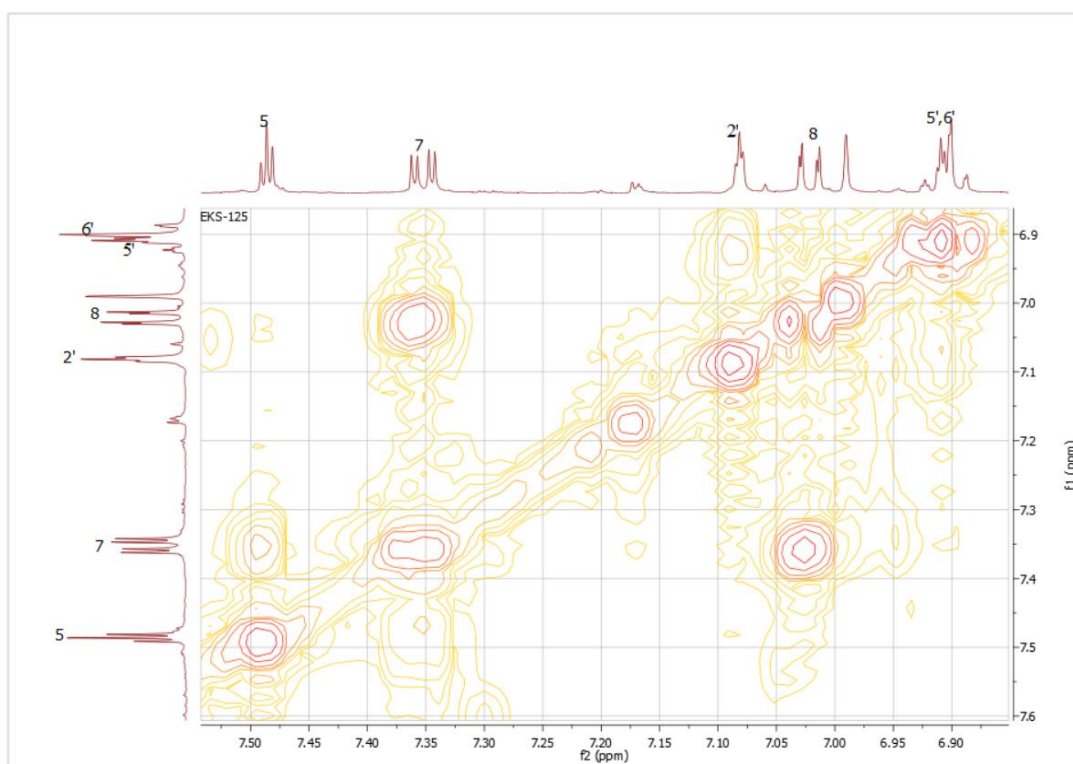


**Figure S74.** HSQC NMR spectrum of 3',4'-dihydroxyflavanone 6-O-β-D-(4''-O-methyl)-glucopyranoside (3c) (Acetone-d<sub>6</sub>, 151 MHz)





**Figure S75.** HMBC NMR spectrum of 3',4'-dihydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3c) (Acetone- $d_6$ , 151 MHz)



**Figure S76.** COSY NMR spectrum of 3',4'-dihydroxyflavanone 6-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (3c) (Ac etone- $d_6$ , 600 MHz)



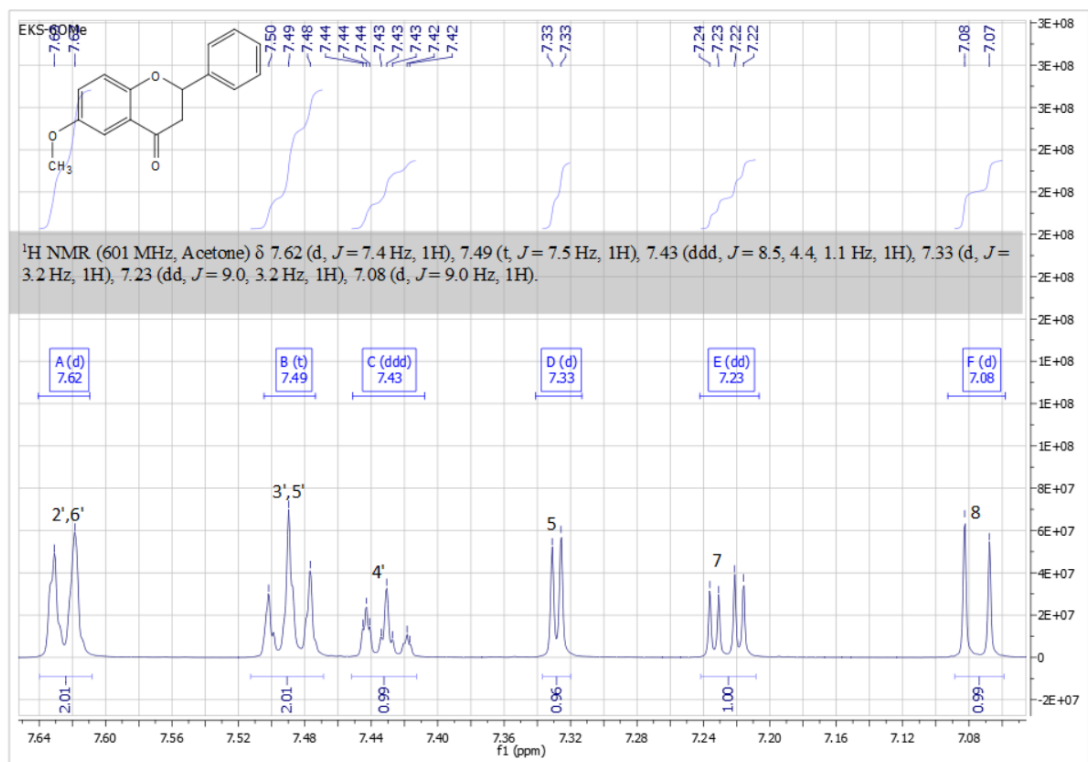


Figure S77. <sup>1</sup>H NMR spectrum of 6-methoxyflavanone (4) (Acetone-d<sub>6</sub>, 600 MHz)

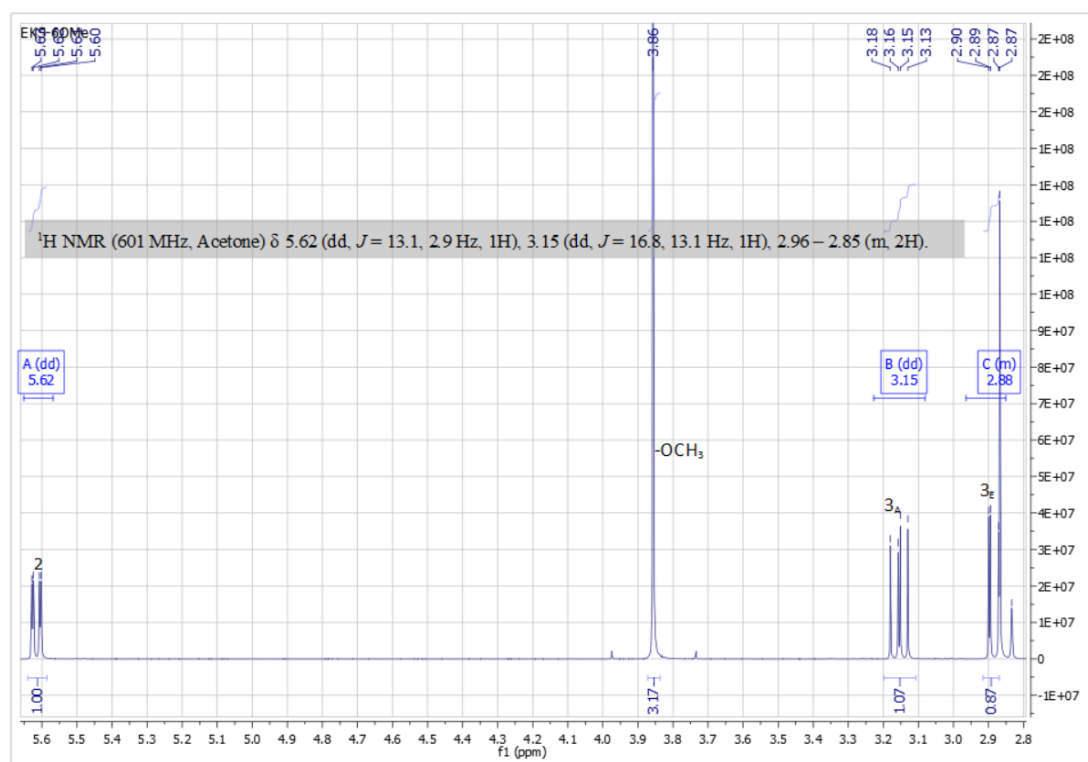
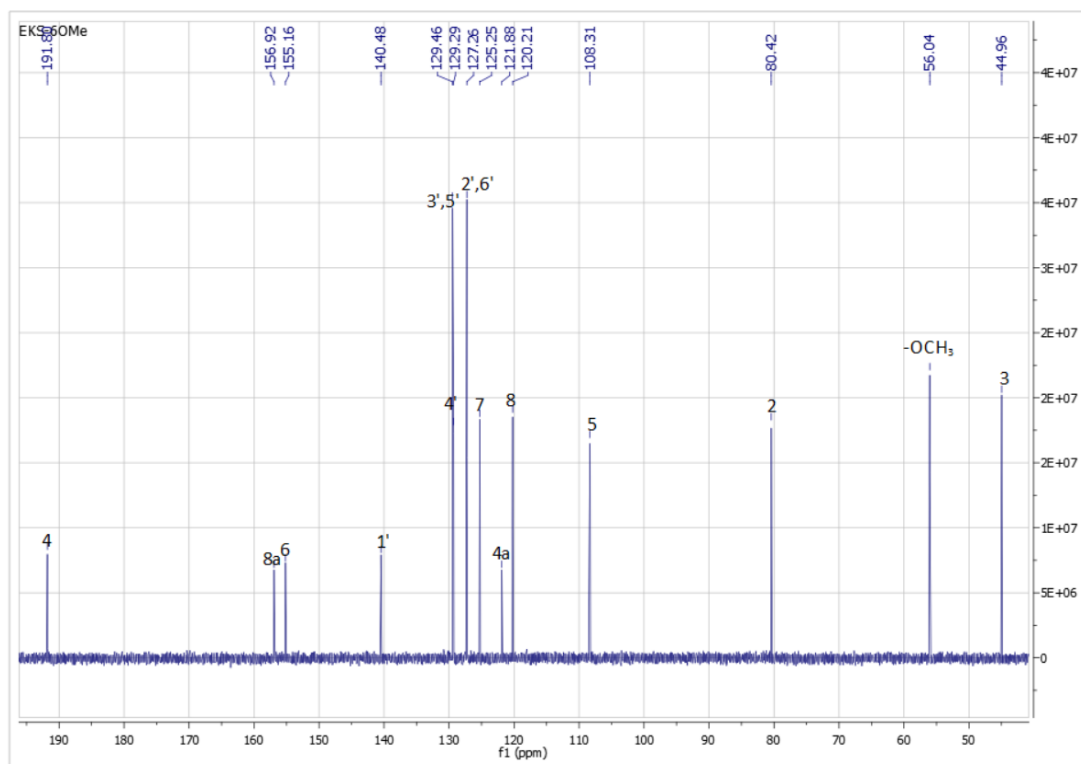
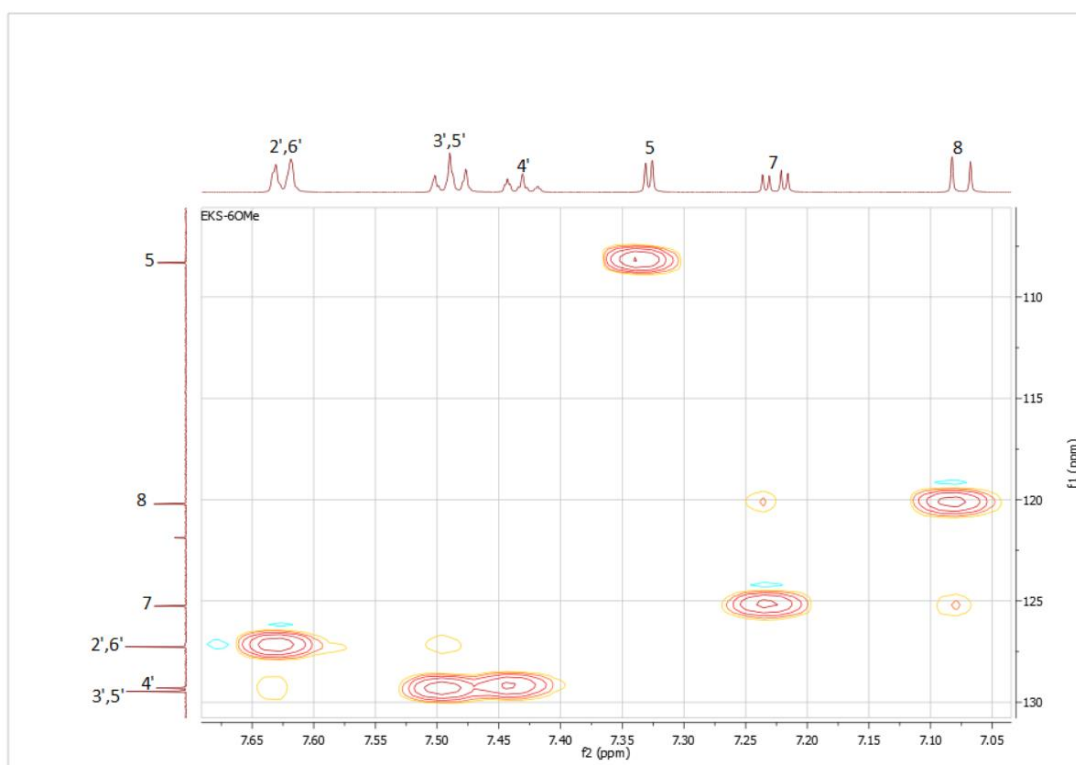


Figure S78. <sup>1</sup>H NMR spectrum of 6-methoxyflavanone (4) (Acetone-d<sub>6</sub>, 600 MHz)



**Figure S79.**  $^{13}\text{C}$  NMR spectrum of 6-methoxyflavanone (4) (Acetone- $d_6$ , 151 MHz)



**Figure S80.** HSQC NMR spectrum of 6-methoxyflavanone (4) (Acetone- $d_6$ , 151 MHz)

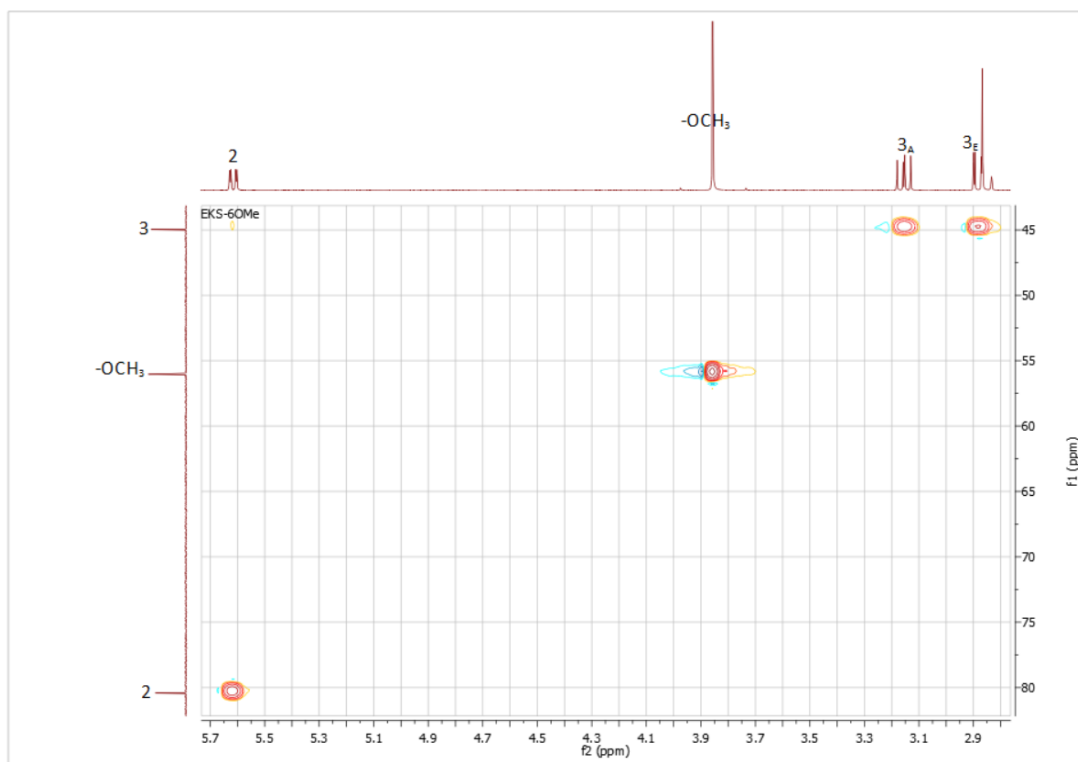


Figure S81. HSQC NMR spectrum of 6-methoxyflavanone (4) (Acetone- $d_6$ , 151 MHz)

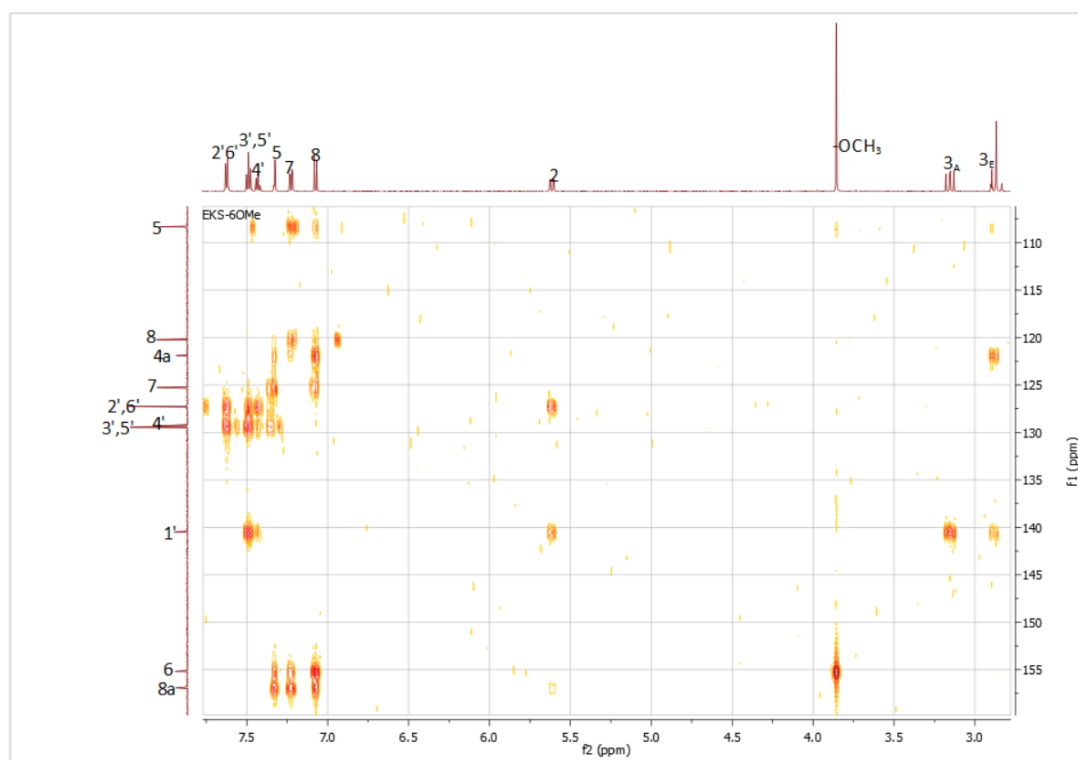
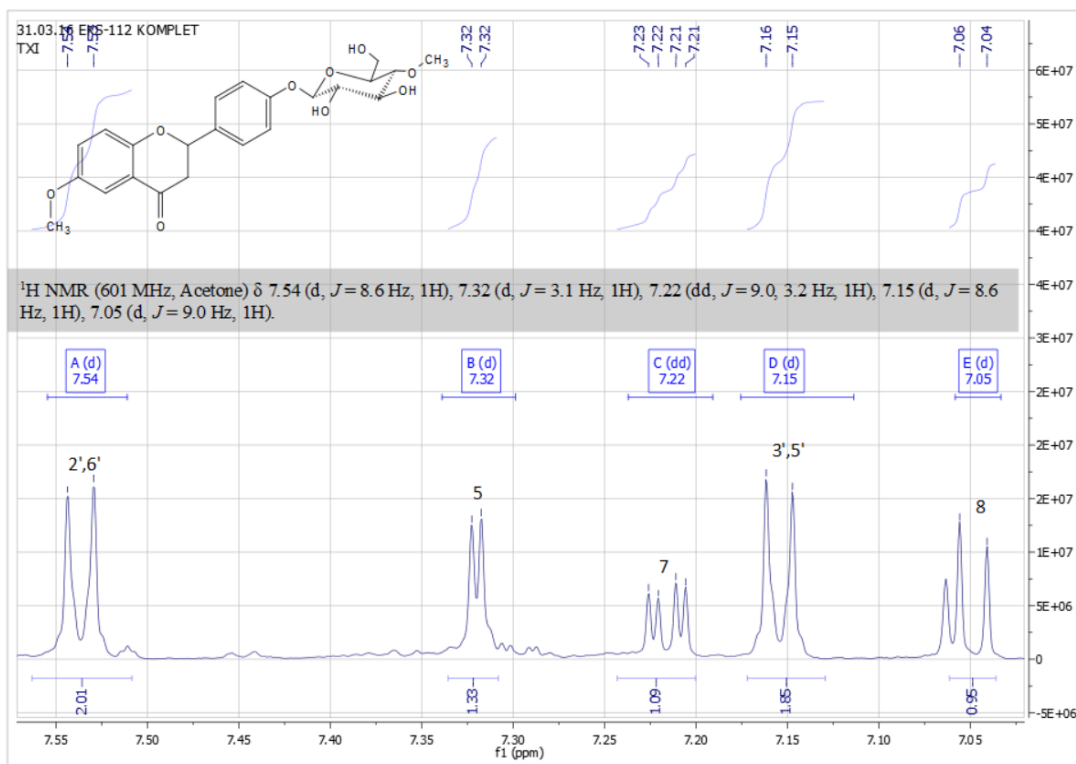
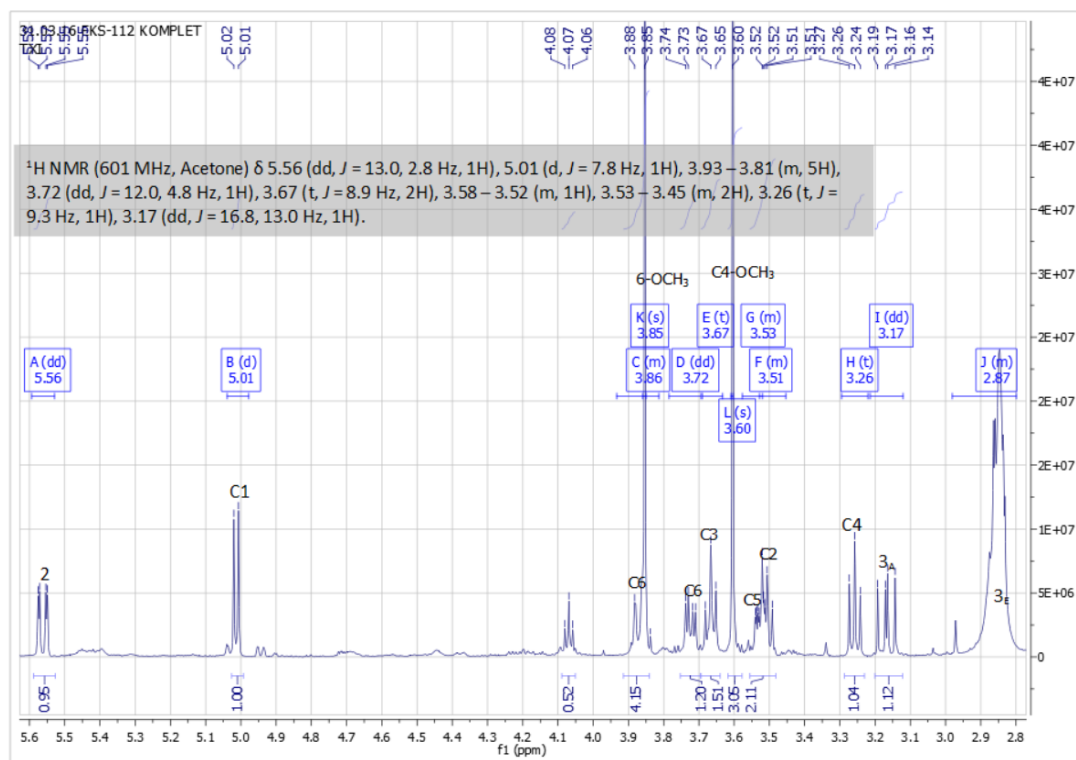


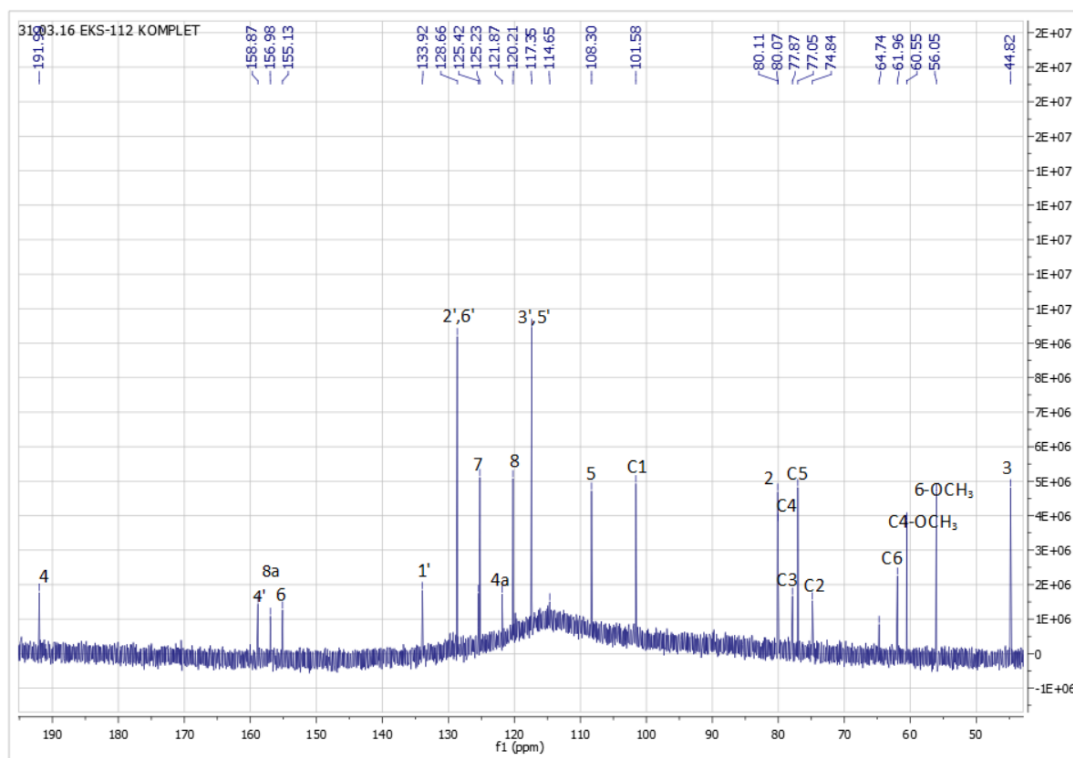
Figure S82. HMBC NMR spectrum of 6-methoxyflavanone (4) (Acetone- $d_6$ , 151 MHz)



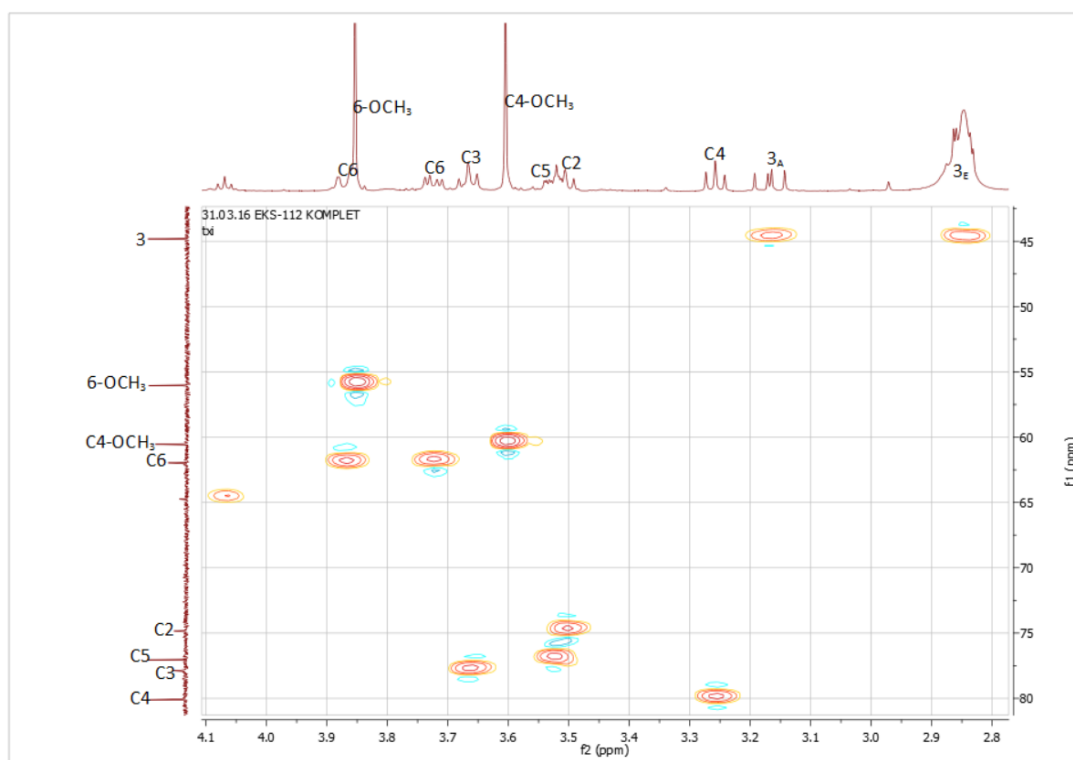
**Figure S83.** <sup>1</sup>H NMR spectrum of 6-methoxyflavanone 4'-O-β-D-(4''-O-methyl)-glucopyranoside (4a) (Acetone-d<sub>6</sub>, 600 MHz)



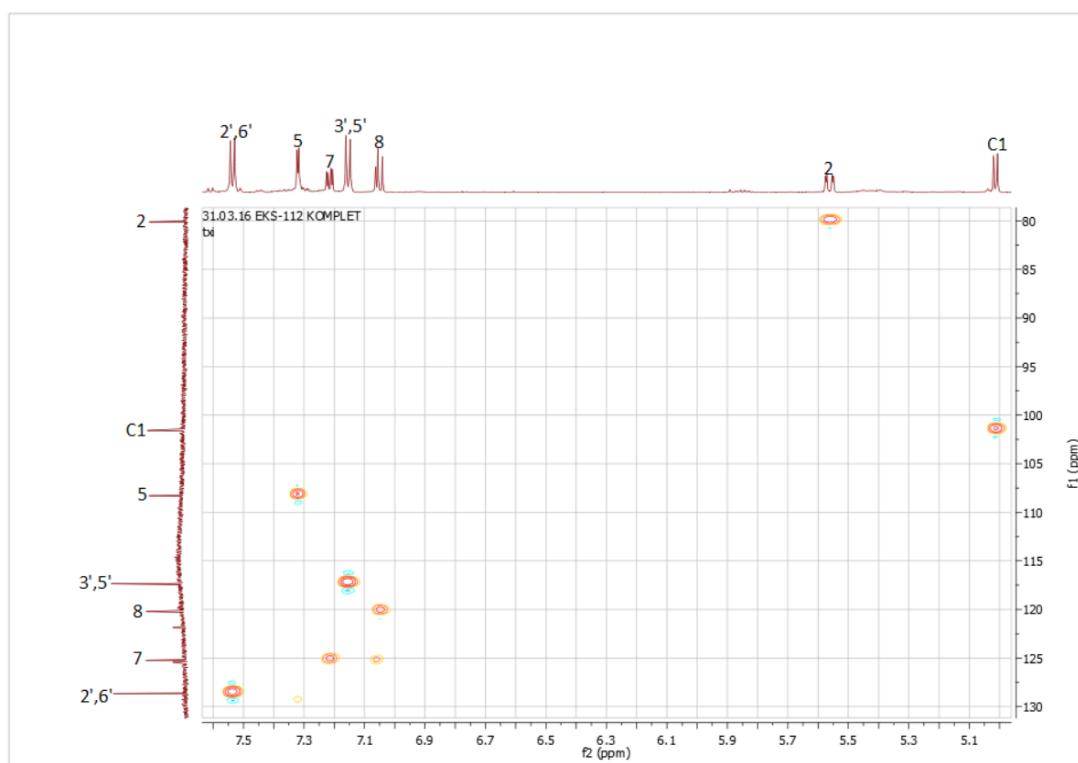
**Figure S84.** <sup>1</sup>H NMR spectrum of 6-methoxyflavanone 4'-O-β-D-(4''-O-methyl)-glucopyranoside (4a) (Acetone-d<sub>6</sub>, 600 MHz)



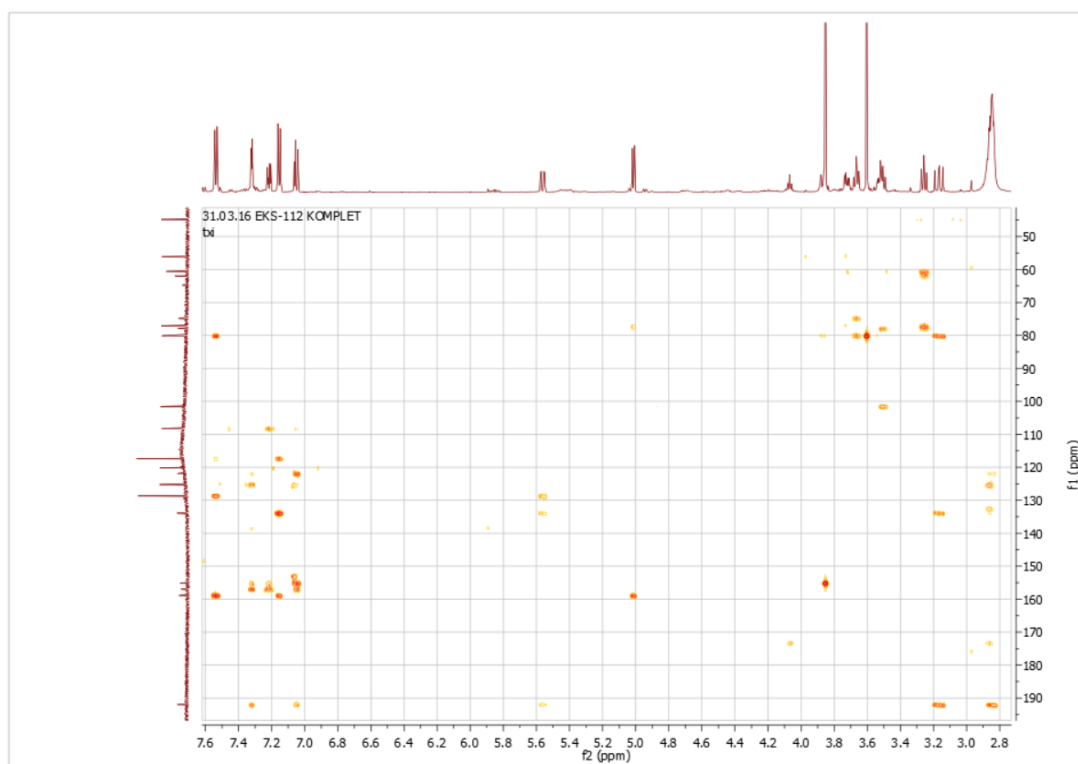
**Figure S85.**  $^{13}\text{C}$  NMR spectrum of 6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4a) (Acetone- $d_6$ , 151 MHz)



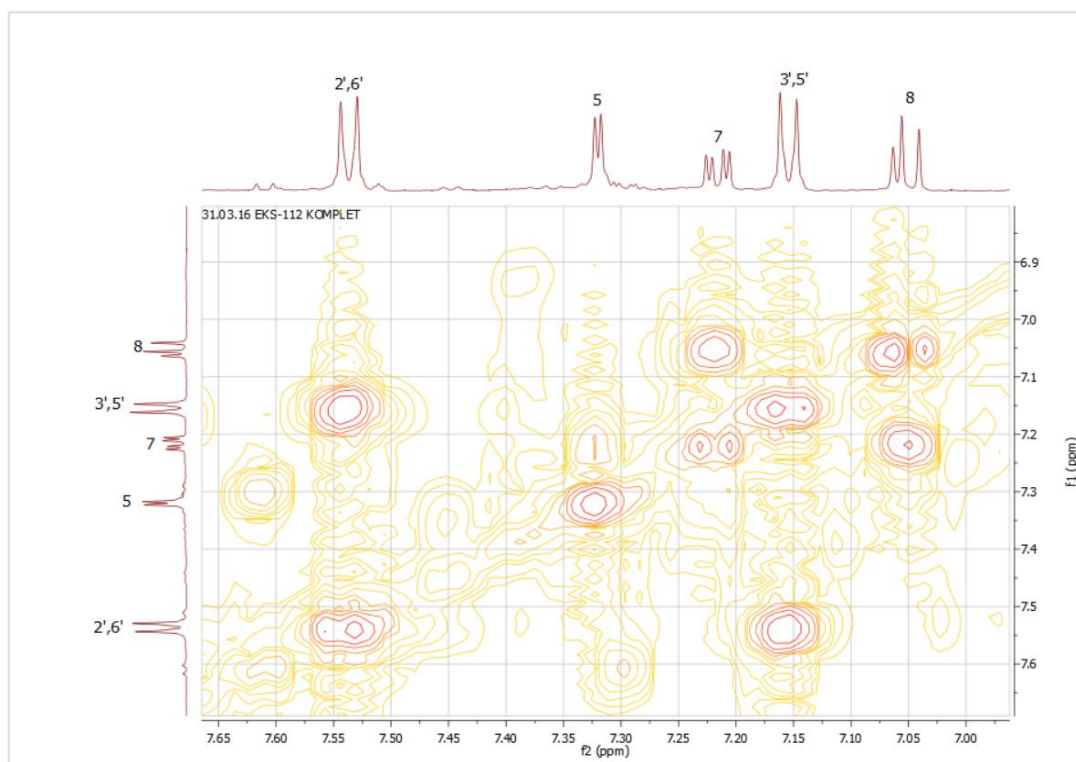
**Figure S86.** HSQC NMR spectrum of 6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4a) (Acetone- $d_6$ , 151 MHz)



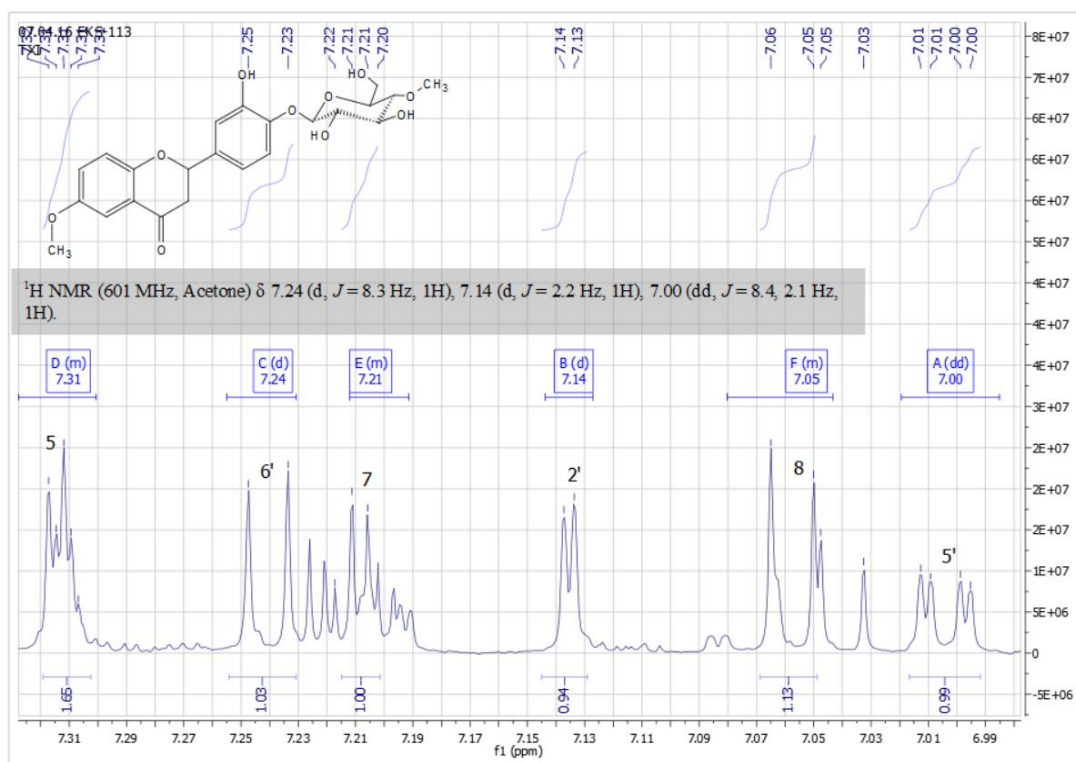
**Figure S87.** HSQC NMR spectrum of 6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4a) (Acetone- $d_6$ , 151 MHz)



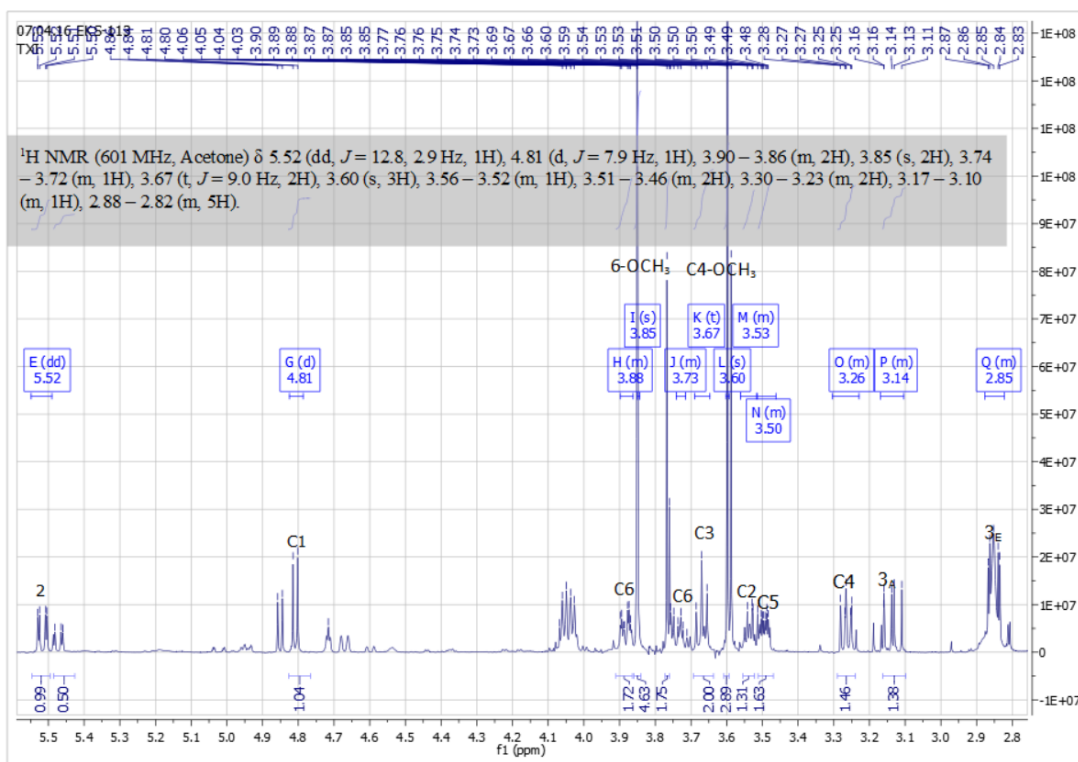
**Figure S88.** HMBC NMR spectrum of 6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4a) (Acetone- $d_6$ , 151 MHz)



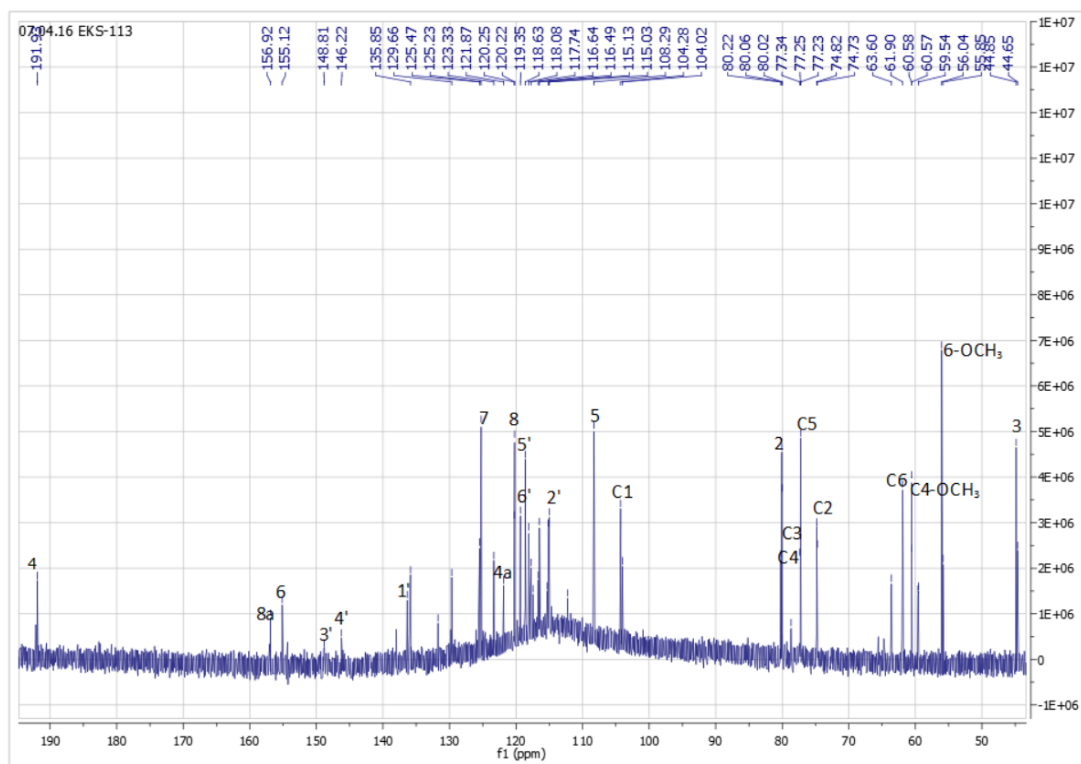
**Figure S89.** COSY NMR spectrum of 6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4a) (Acetone- $d_6$ , 600 MHz)



**Figure S90.** <sup>1</sup>H NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 600 MHz)

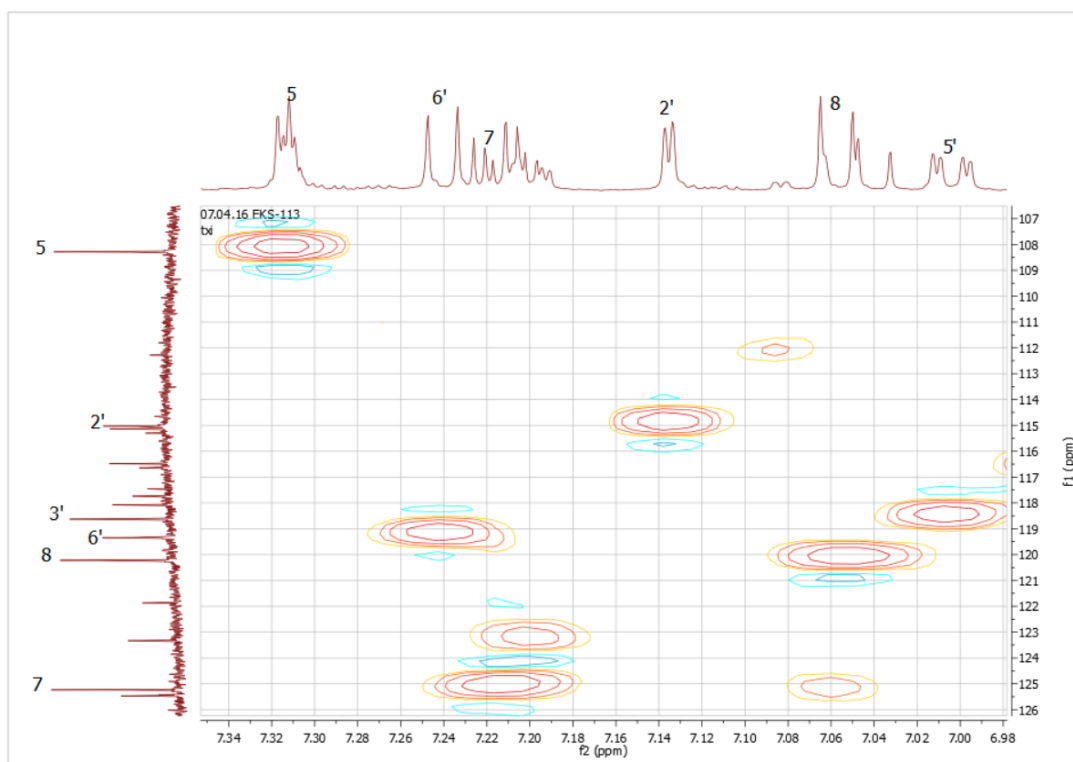


**Figure S91.**  $^1\text{H}$  NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 600 MHz)

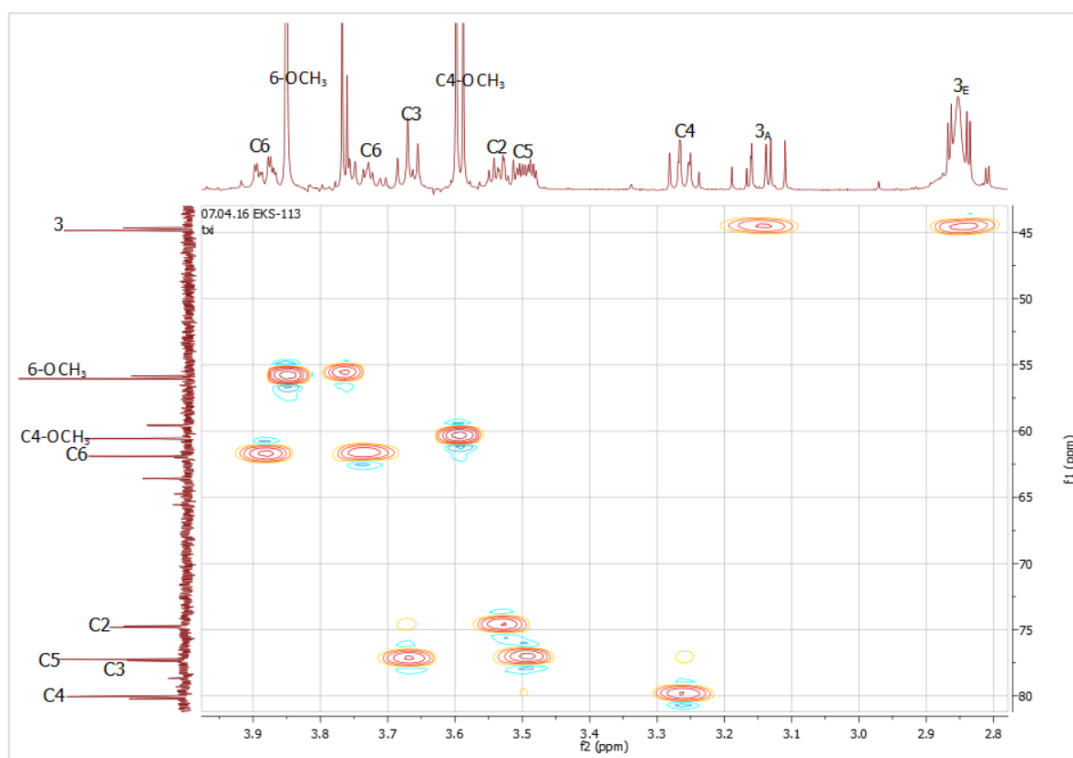


**Figure S92.**  $^{13}\text{C}$  NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 151 MHz)

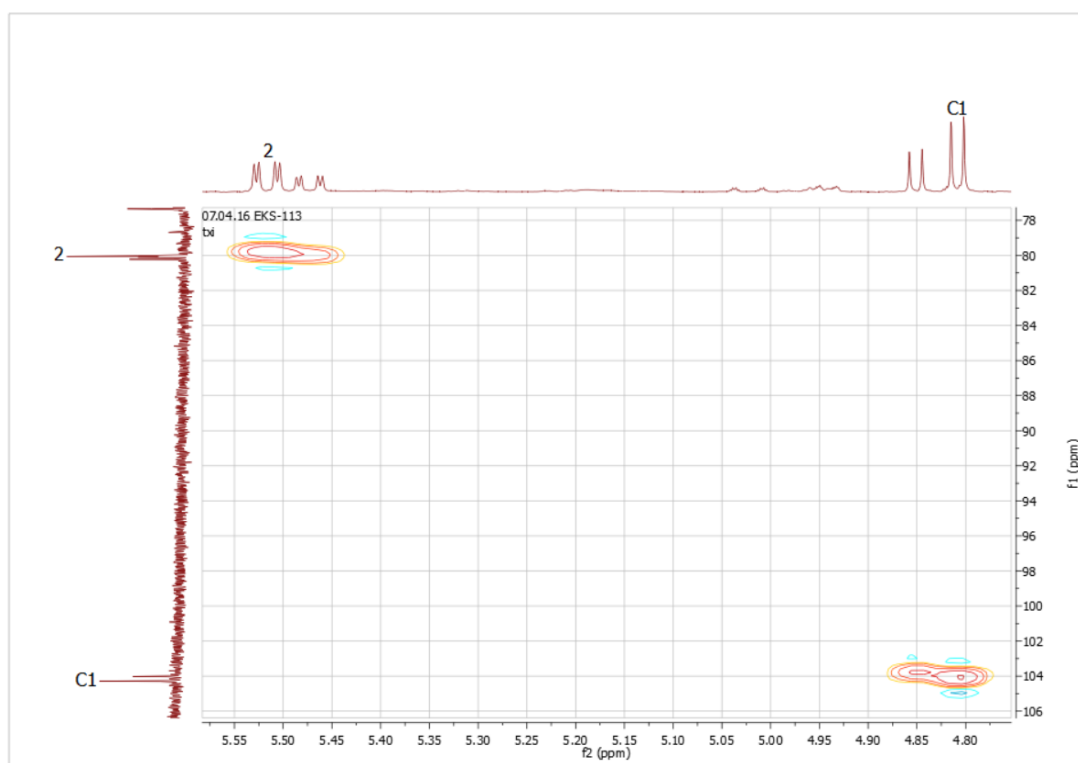




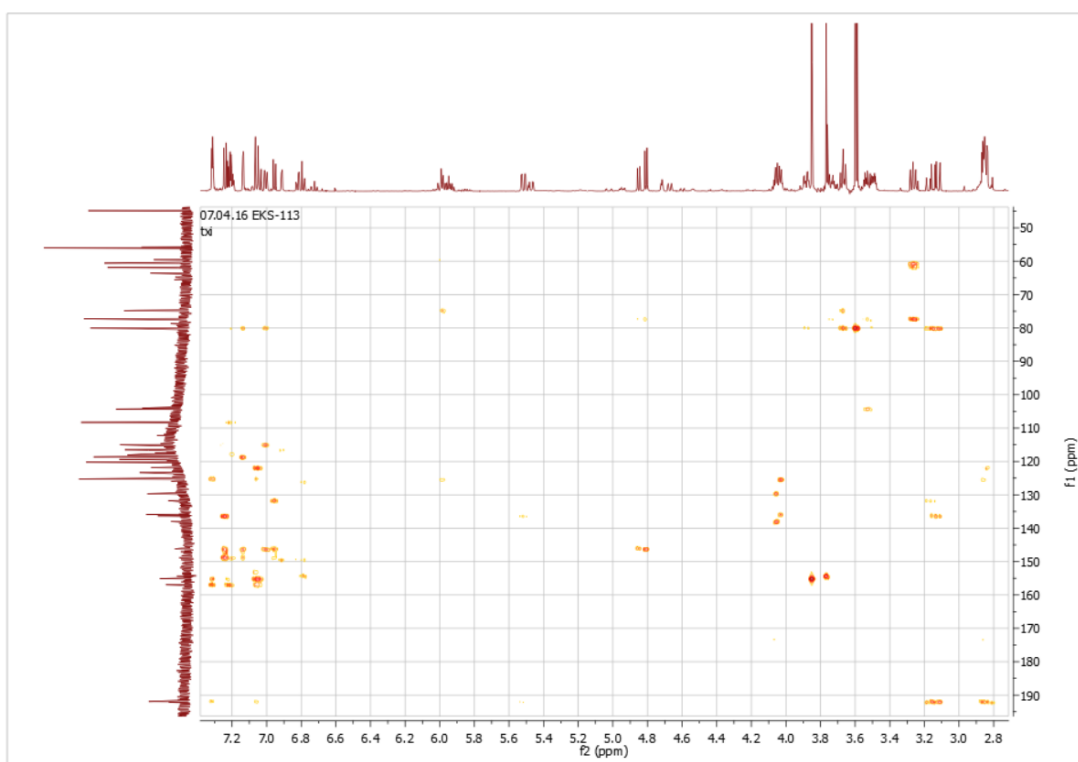
**Figure S93.** HSQC NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 151 MHz)



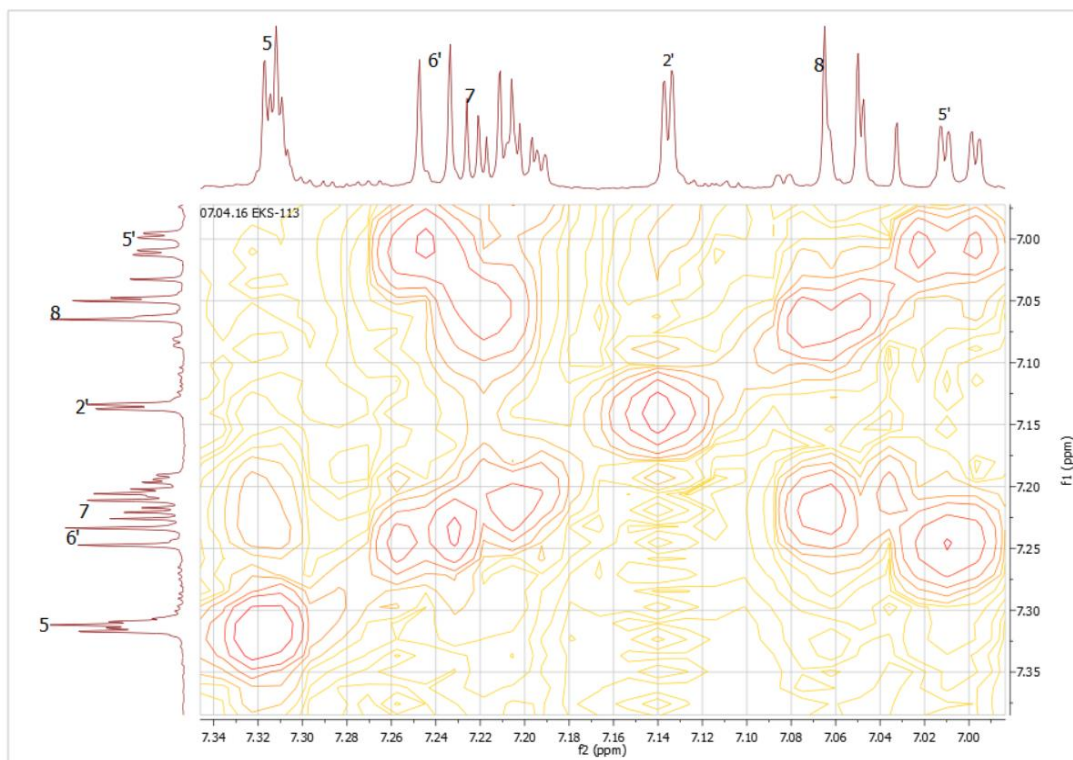
**Figure S94.** HSQC NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 151 MHz)



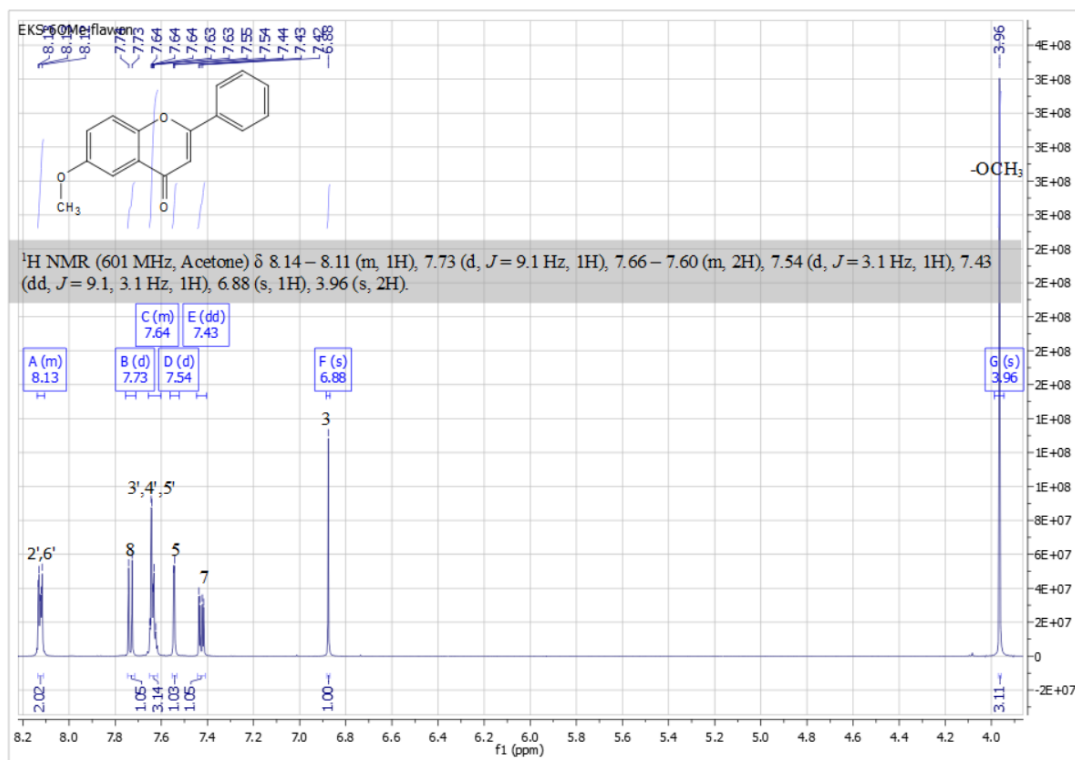
**Figure S95.** HSQC NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 151 MHz)



**Figure S96.** HMBC NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 151 MHz)



**Figure S97.** COSY NMR spectrum of 3'-hydroxy-6-methoxyflavanone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (4b) (Acetone- $d_6$ , 600 MHz)



**Figure S98.** <sup>1</sup>H NMR spectrum of 6-methoxyflavone (5) (Acetone- $d_6$ , 600 MHz)

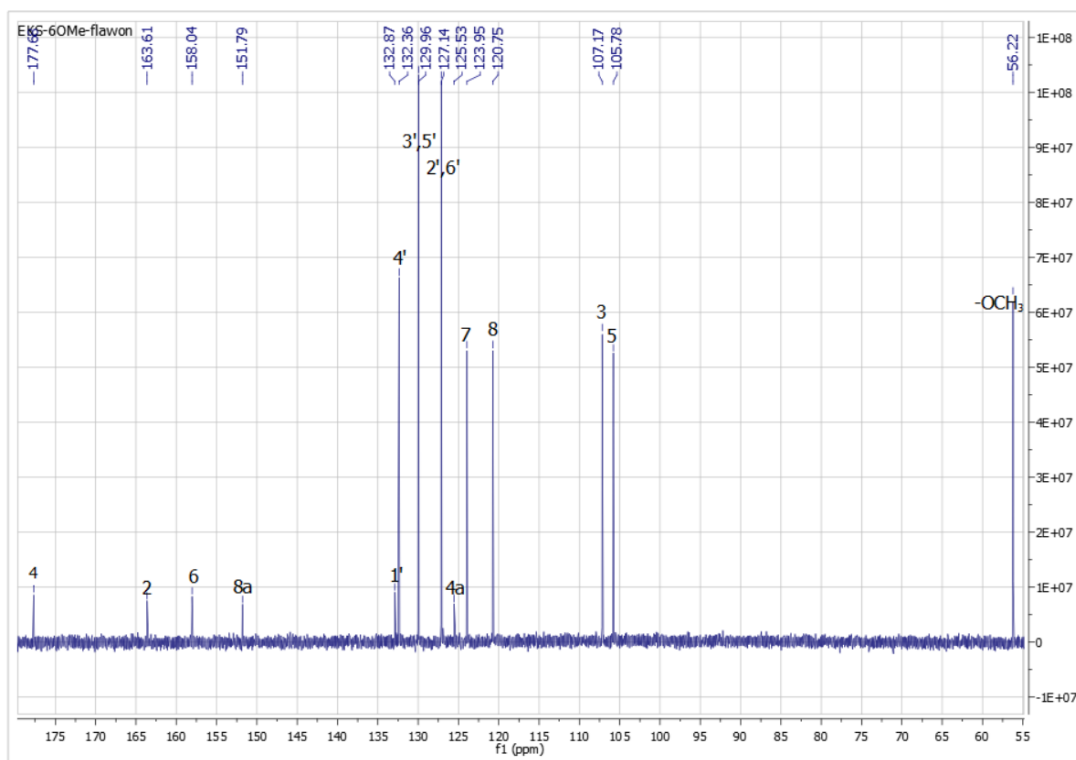


Figure S99.  $^{13}\text{C}$  NMR spectrum of 6-methoxyflavone (5) (Acetone- $d_6$ , 151 MHz)

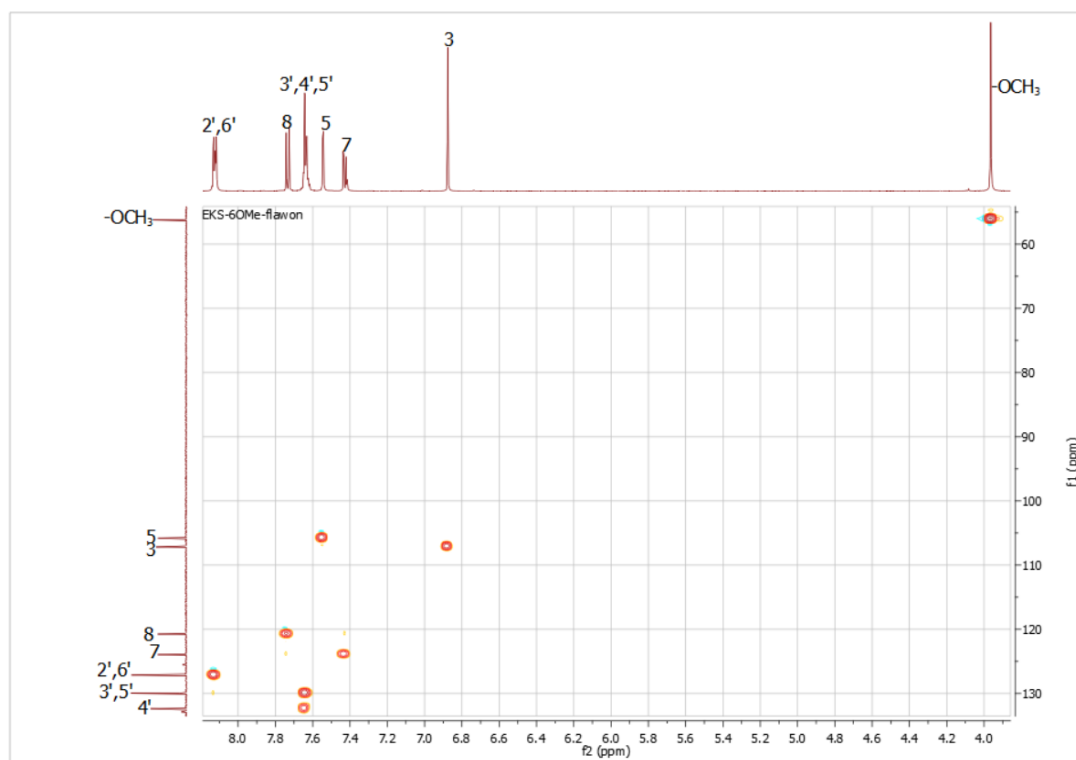


Figure S100. HSQC NMR spectrum of 6-methoxyflavone (5) (Acetone- $d_6$ , 151 MHz)

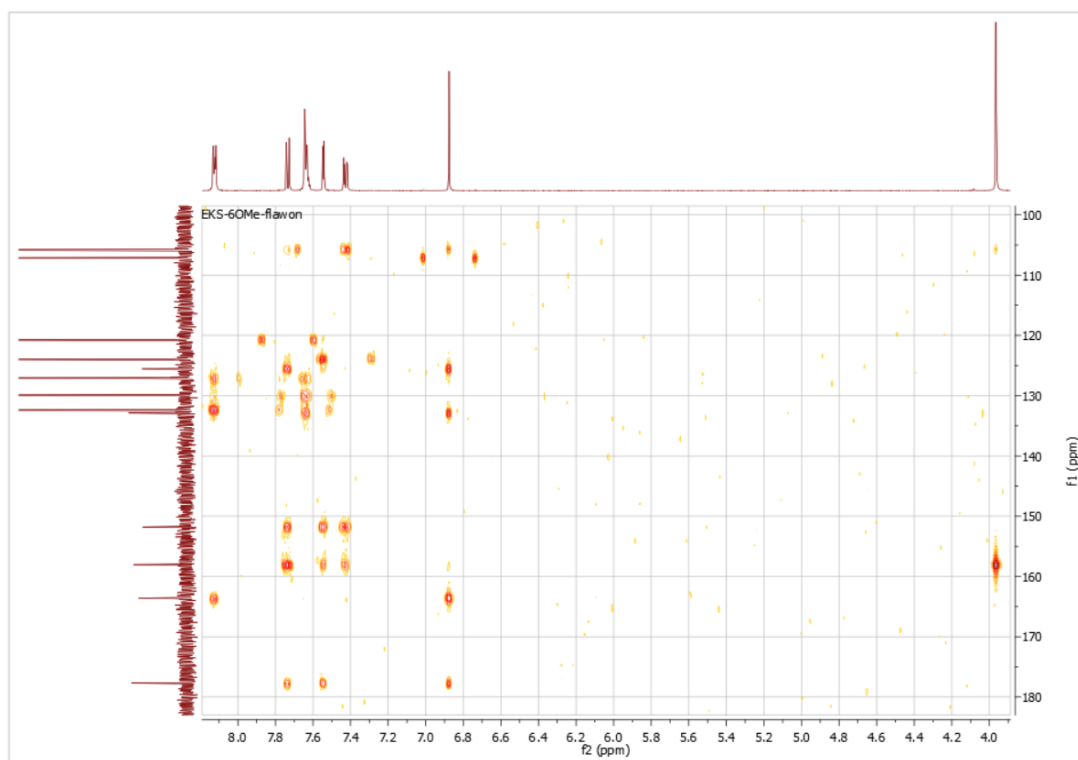


Figure S101. HMBC NMR spectrum of 6-methoxyflavone (5) (Acetone-d<sub>6</sub>, 151 MHz)

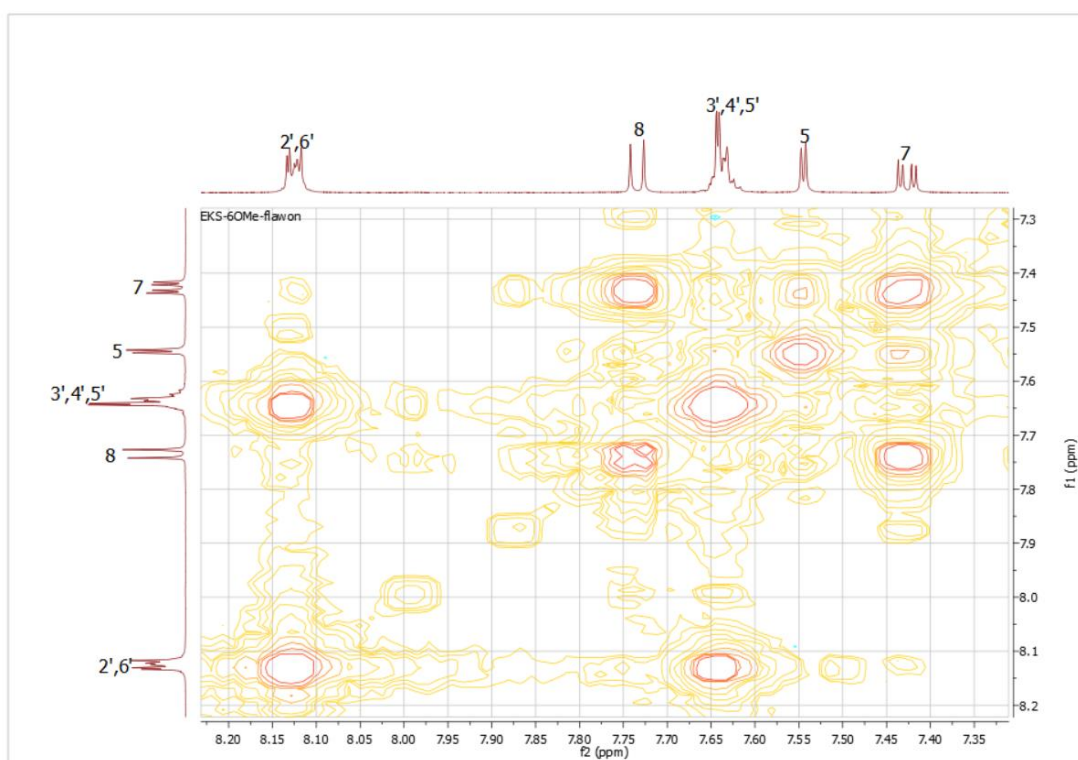
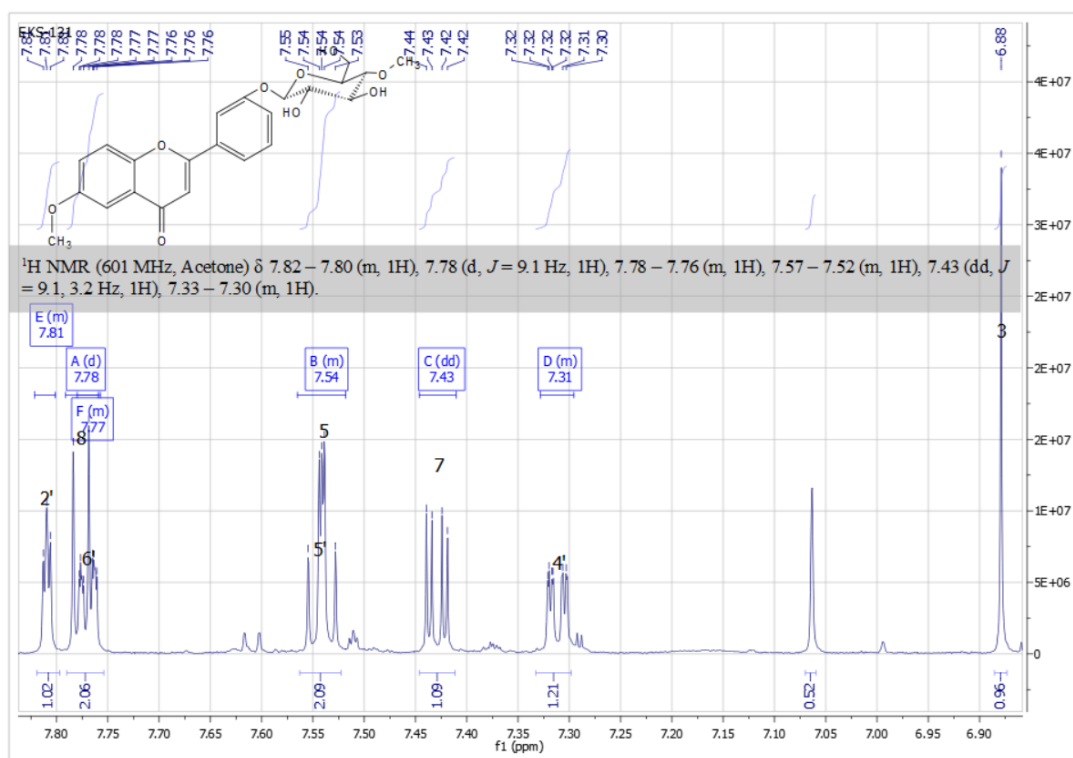
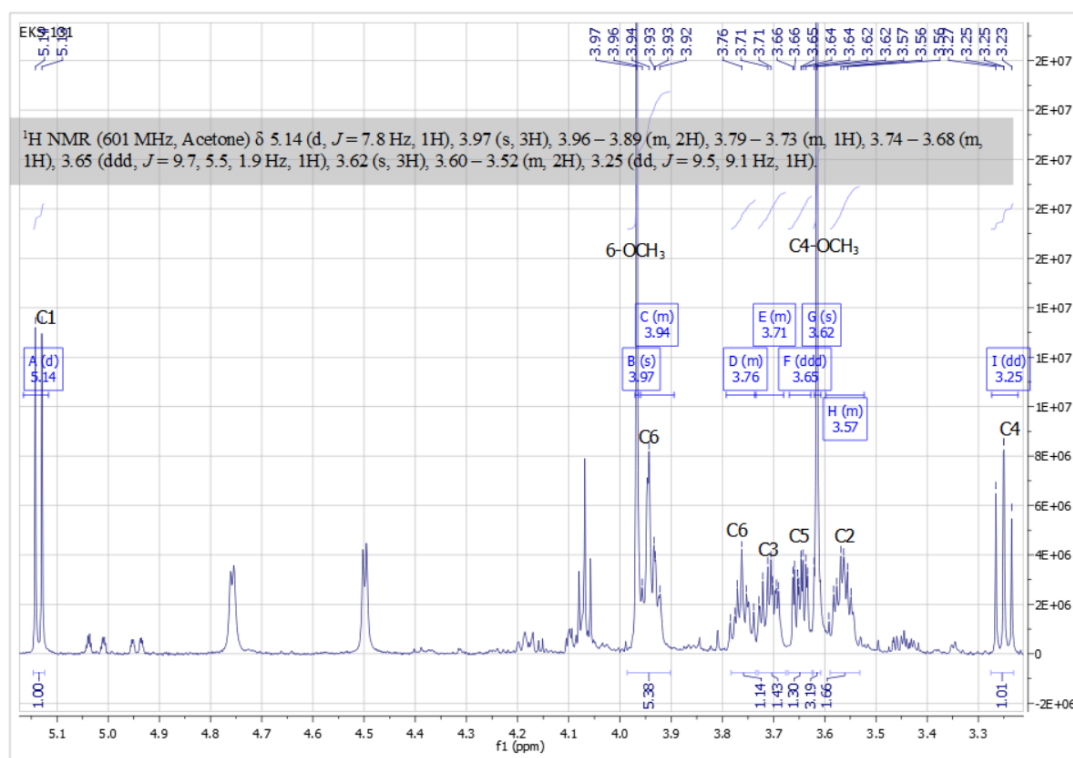


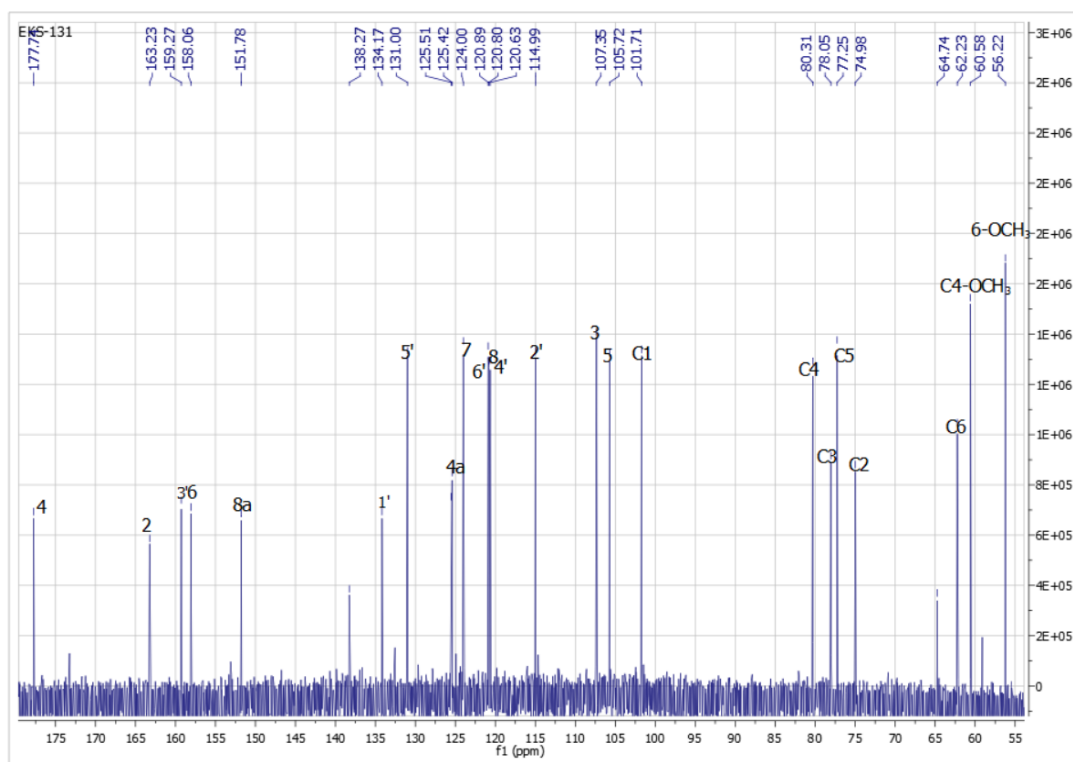
Figure S102. COSY NMR spectrum of 6-methoxyflavone (5) (Acetone-d<sub>6</sub>, 600 MHz)



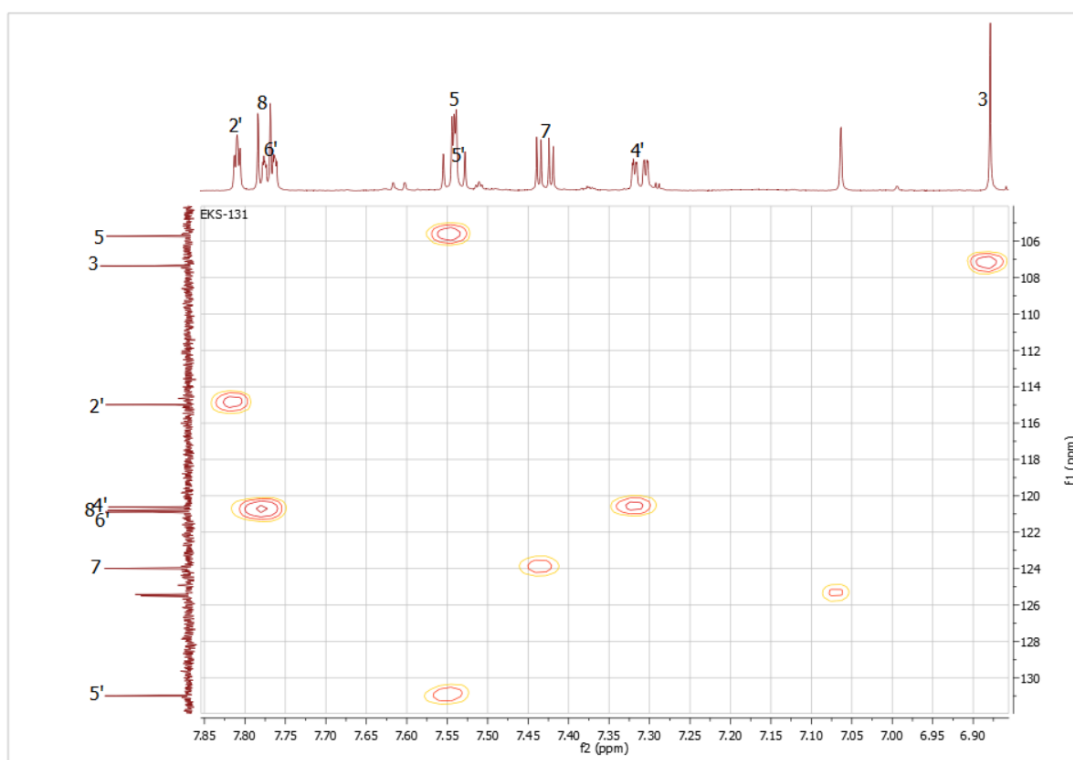
**Figure S103.** <sup>1</sup>H NMR spectrum of 6-methoxyflavone 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 600 MHz)



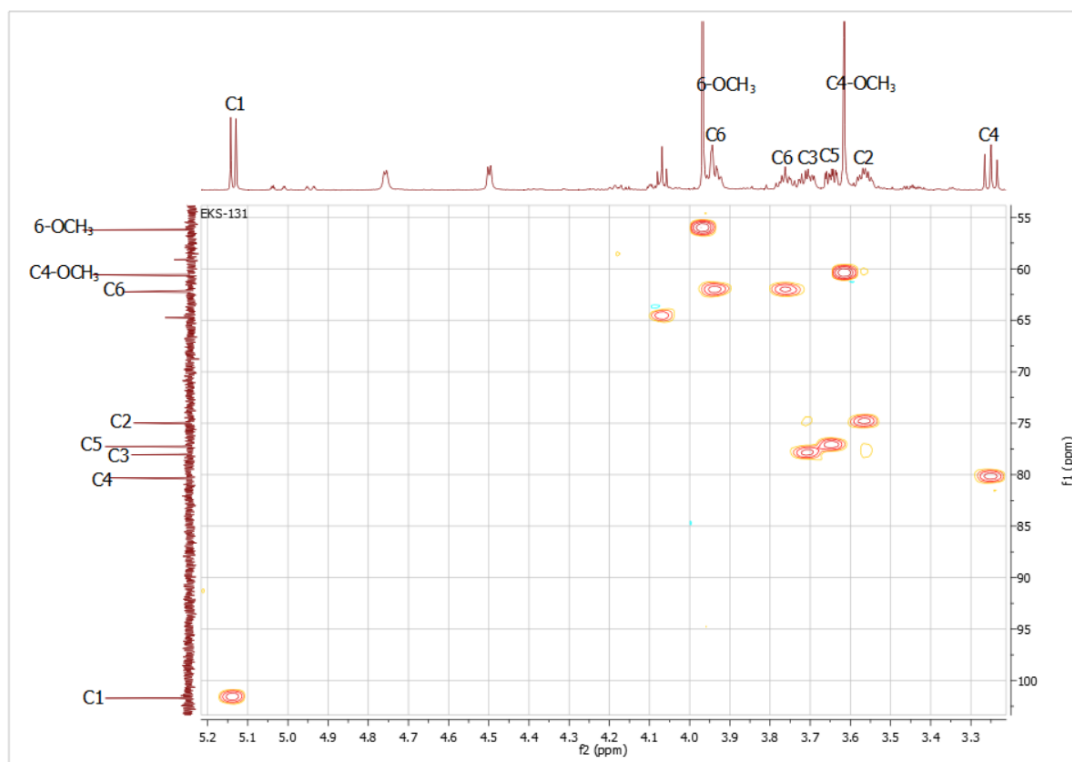
**Figure S104.** <sup>1</sup>H NMR spectrum of 6-methoxyflavone 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 600 MHz)



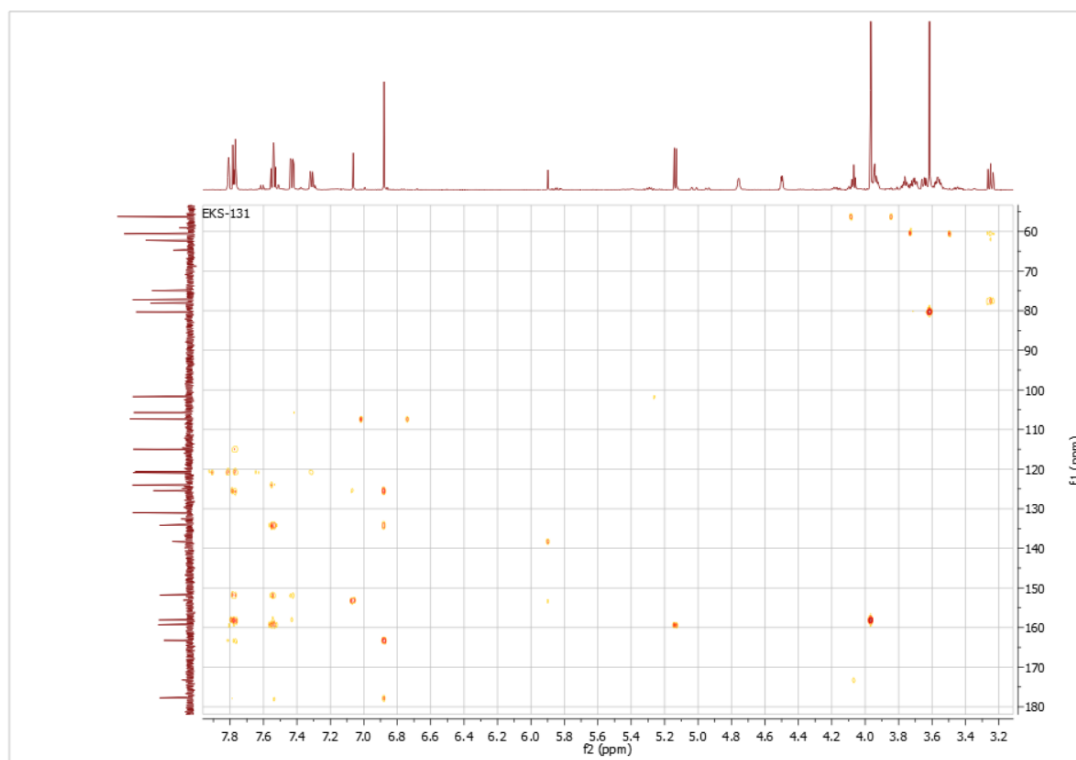
**Figure S105.**  $^{13}\text{C}$  NMR spectrum of 6-methoxyflavone 3'-*O*- $\beta$ -D-(4''-*O*-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 151 MHz)



**Figure S106.** HSQC NMR spectrum of 6-methoxyflavone 3'-*O*- $\beta$ -D-(4''-*O*-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 151 MHz)

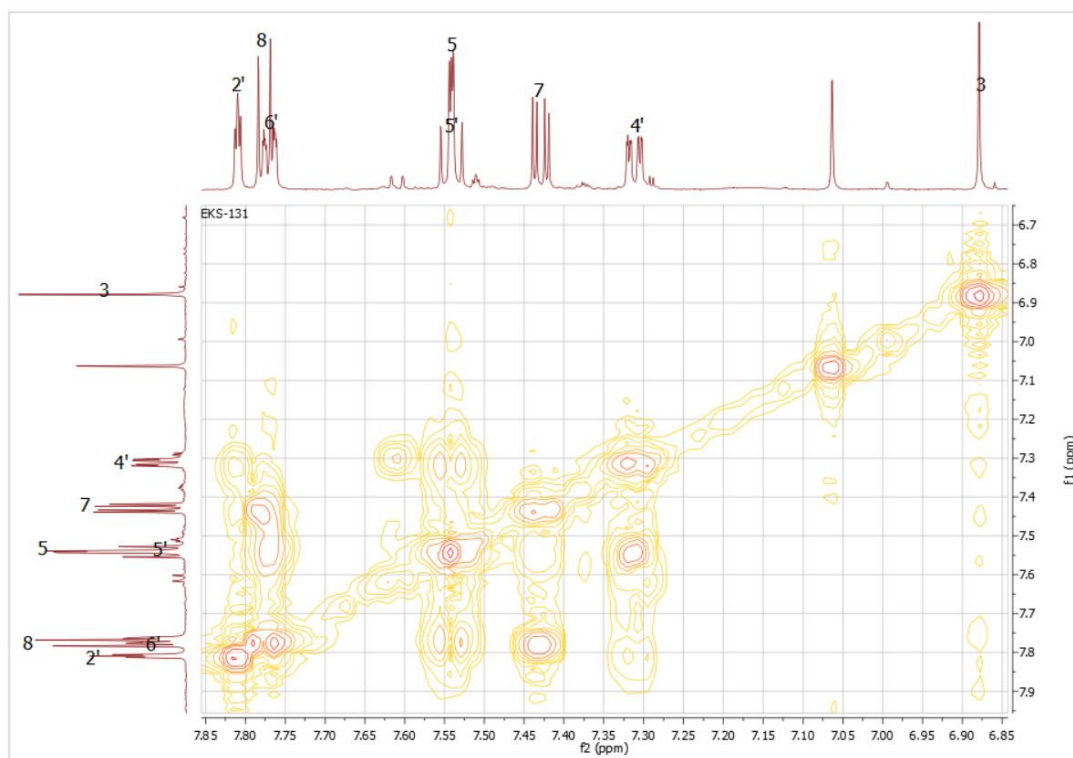


**Figure S107.** HSQC NMR spectrum of 6-methoxyflavone 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 151 MHz)

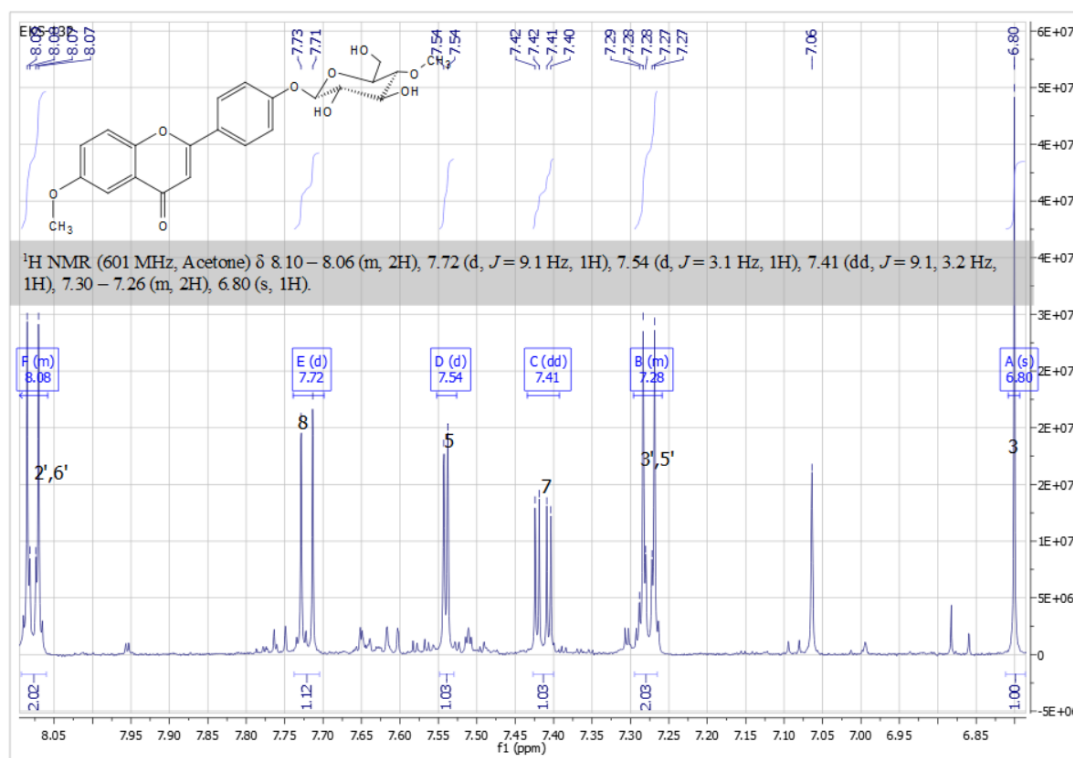


**Figure S108.** HMBC NMR spectrum of 6-methoxyflavone 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 151 MHz)



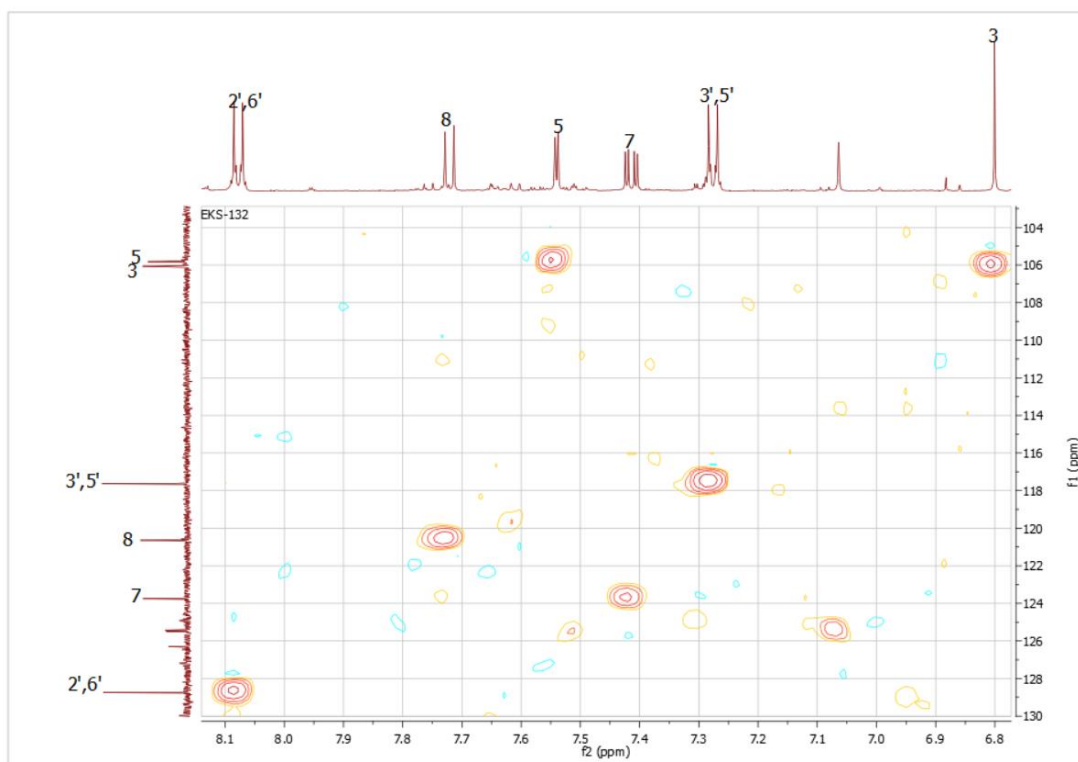


**Figure S109.** COSY NMR spectrum of 6-methoxyflavone 3'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5a) (Acetone- $d_6$ , 600 MHz)

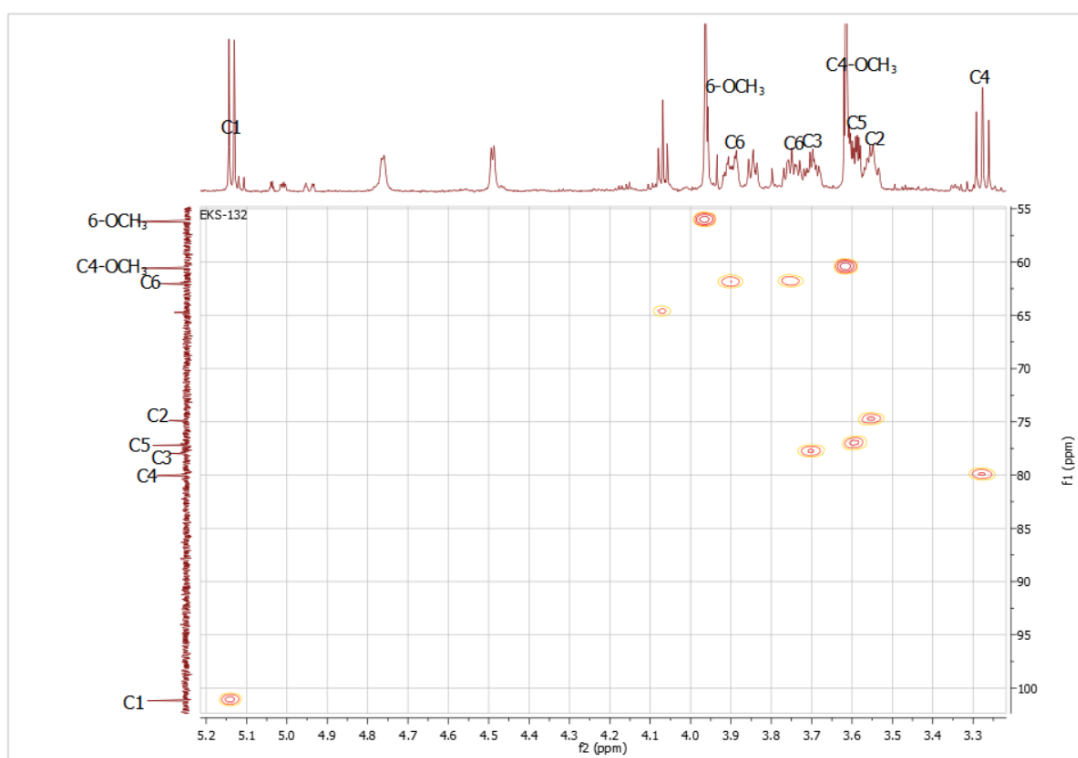


**Figure S110.**  $^1\text{H}$  NMR spectrum of 6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5b) (Acetone- $d_6$ , 600 MHz)

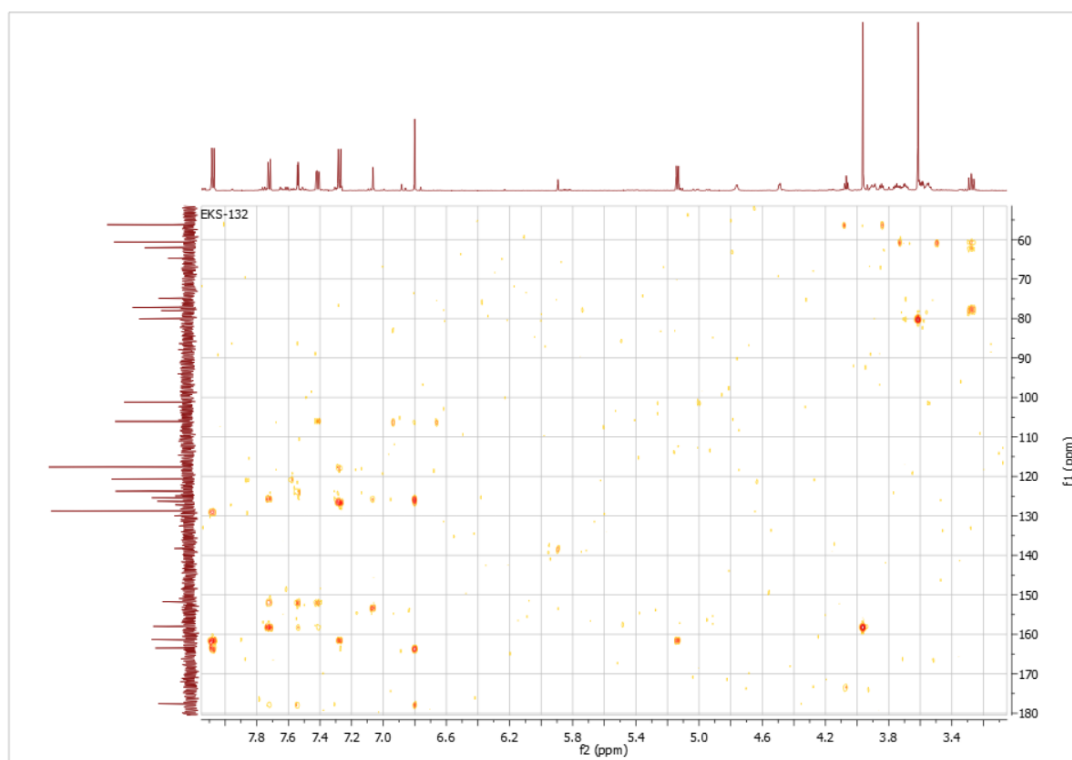




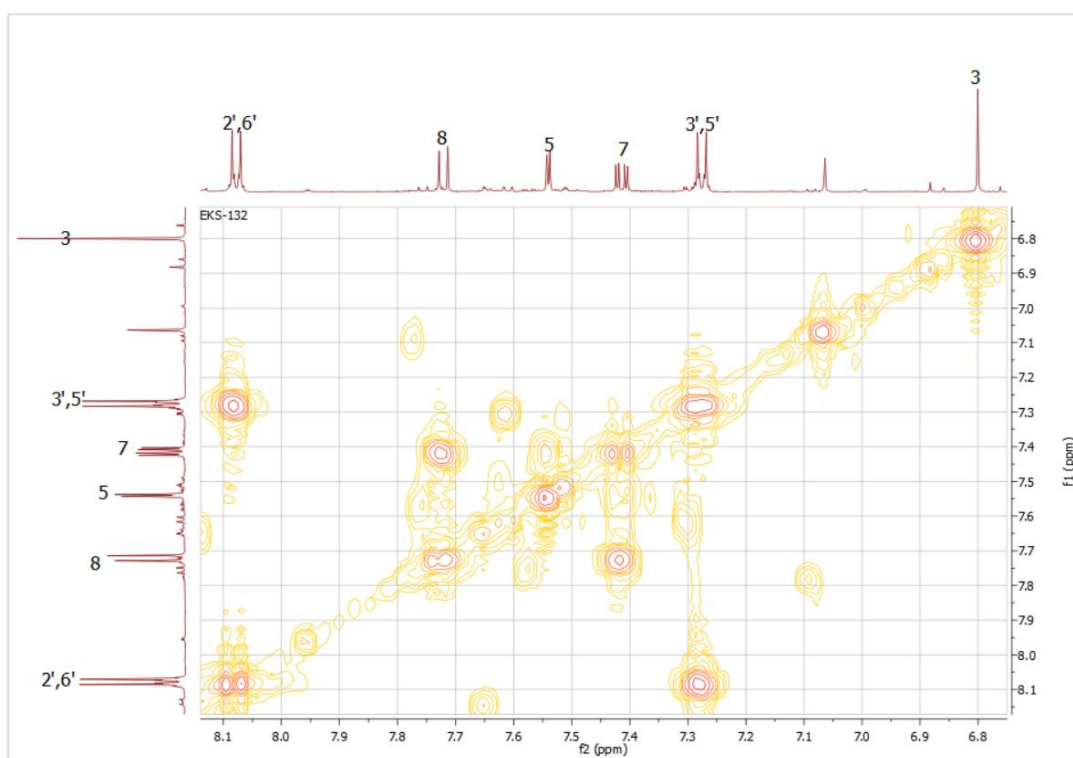
**Figure S113.** HSQC NMR spectrum of 6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5b) (Acetone- $d_6$ , 151 MHz)



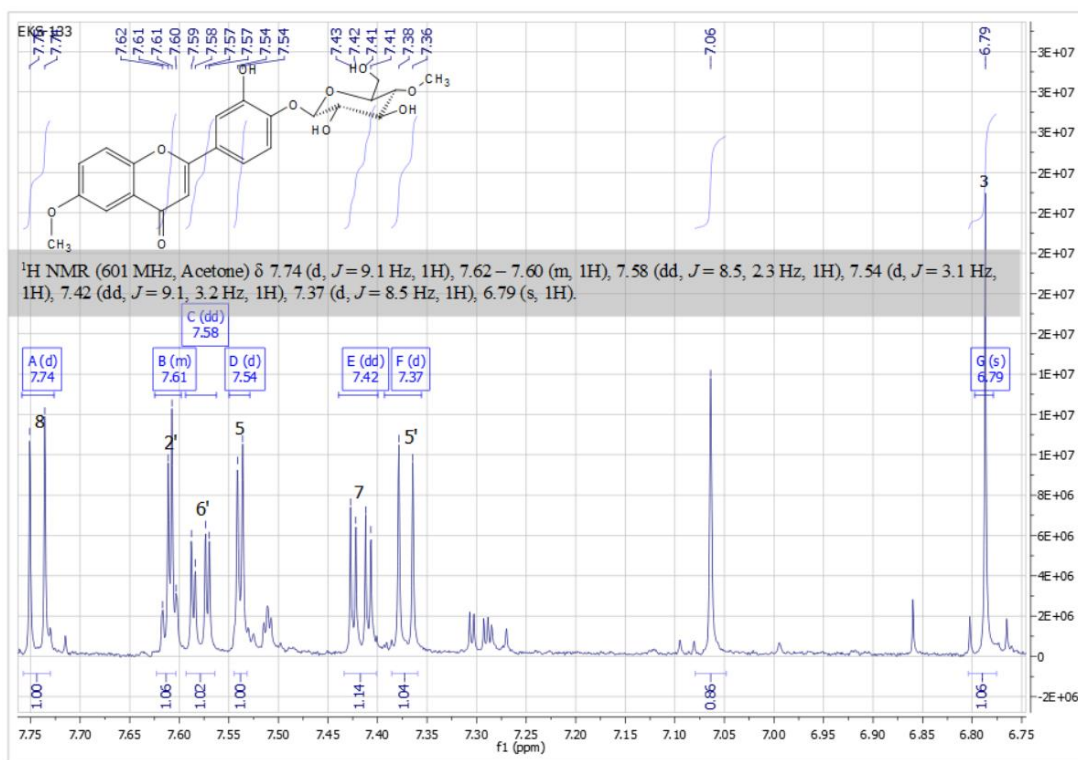
**Figure S114.** HSQC NMR spectrum of 6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5b) (Acetone- $d_6$ , 151 MHz)



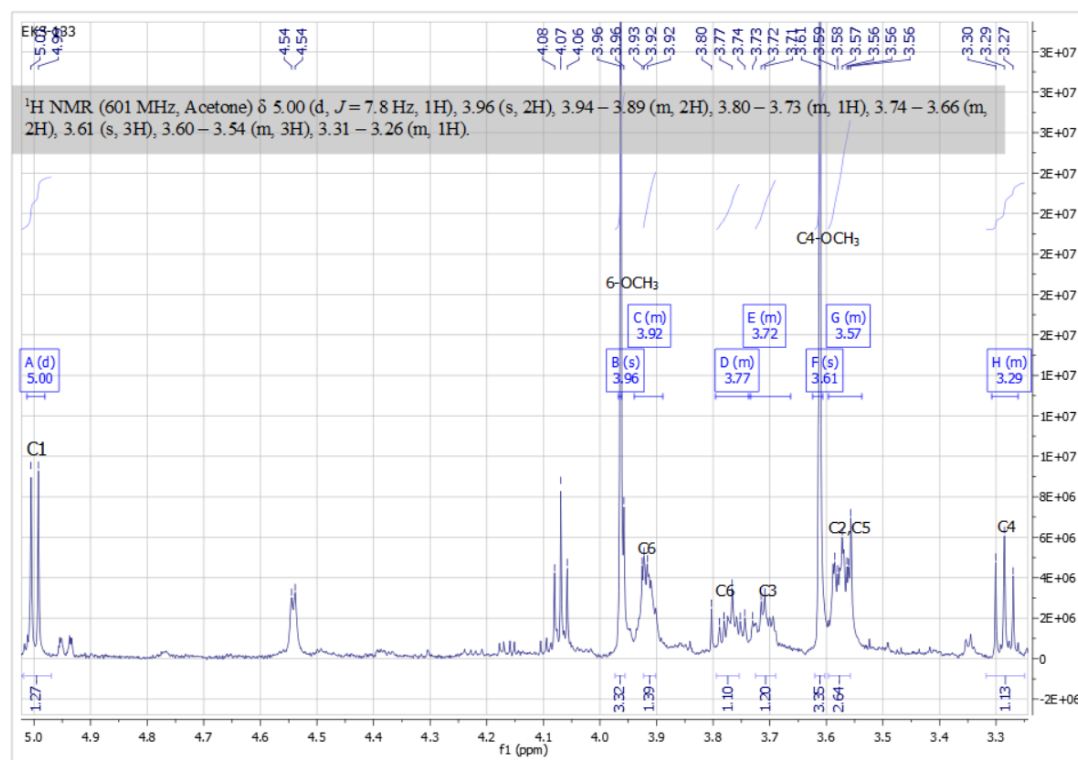
**Figure S115.** HMBC NMR spectrum of 6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5b) (Acetone- $d_6$ , 151 MHz)



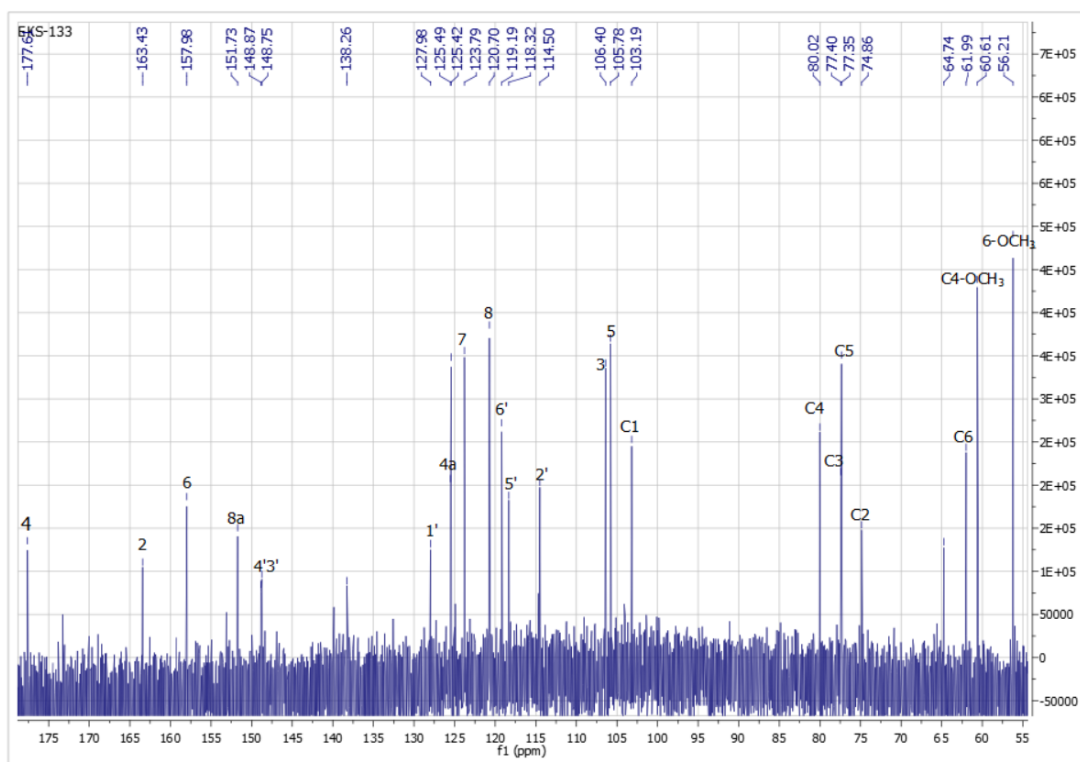
**Figure S116.** COSY NMR spectrum of 6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5b) (Acetone- $d_6$ , 600 MHz)



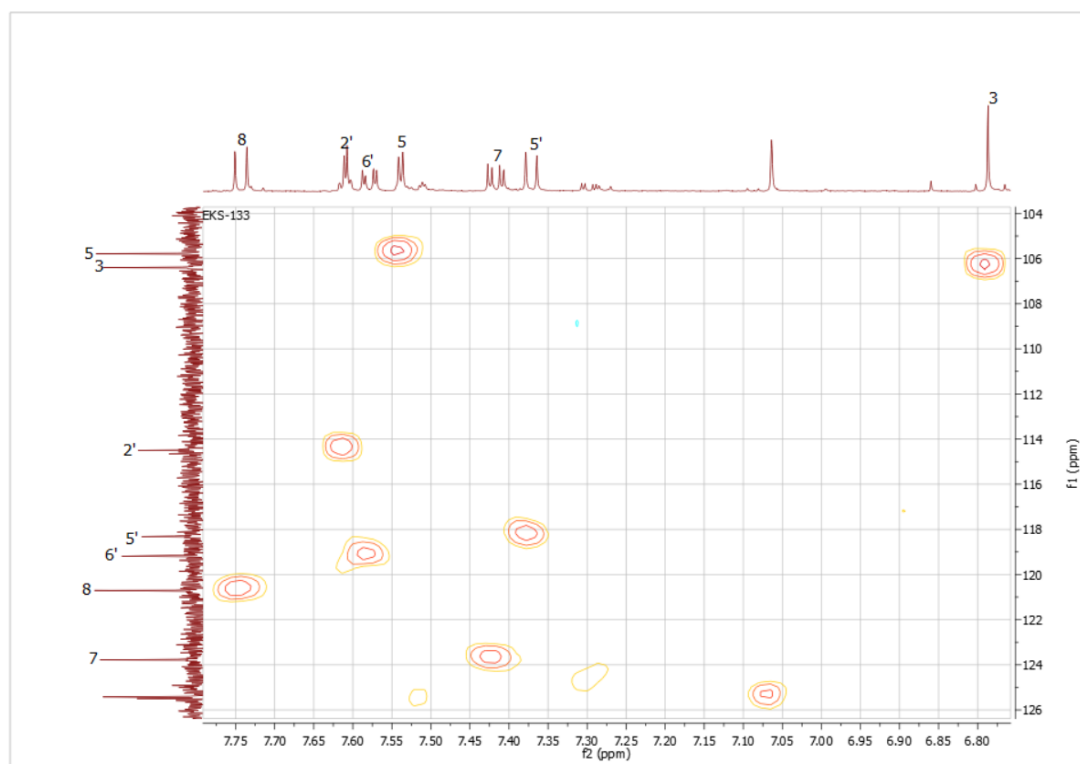
**Figure S117.** <sup>1</sup>H NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O-β-D-(4''-O-methyl)-glucopyranoside (5c) (Acetone-d<sub>6</sub>, 600 MHz)



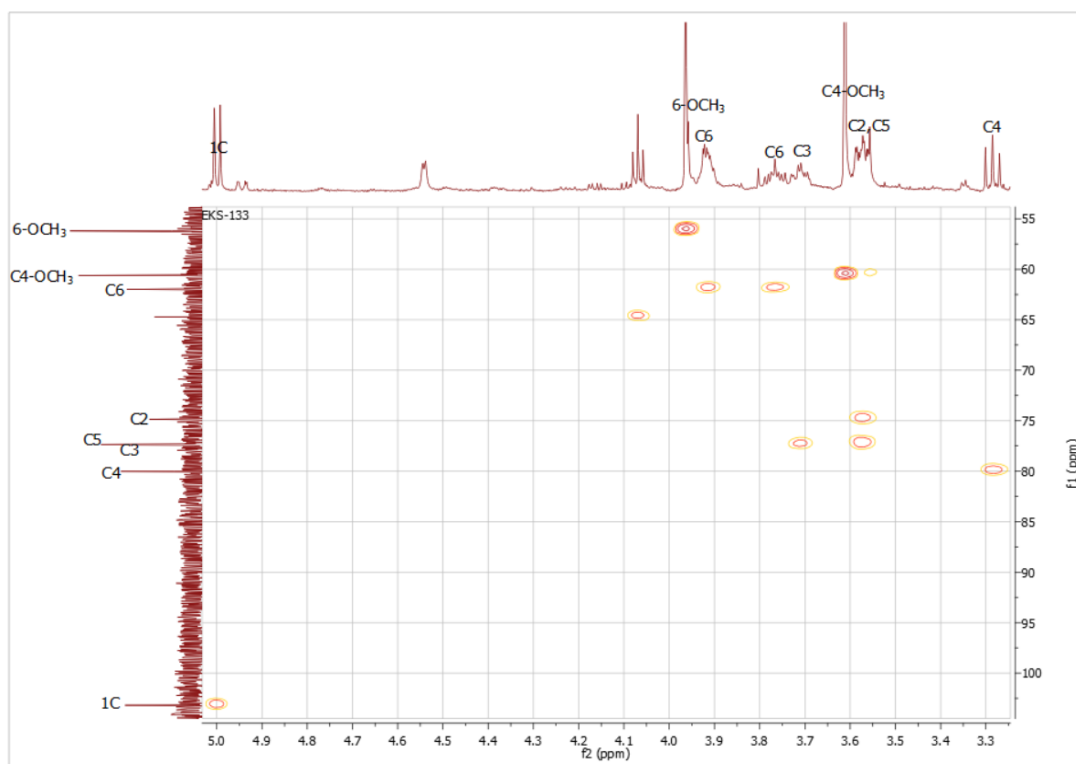
**Figure S118.** <sup>1</sup>H NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O-β-D-(4''-O-methyl)-glucopyranoside (5c) (Acetone-d<sub>6</sub>, 600 MHz)



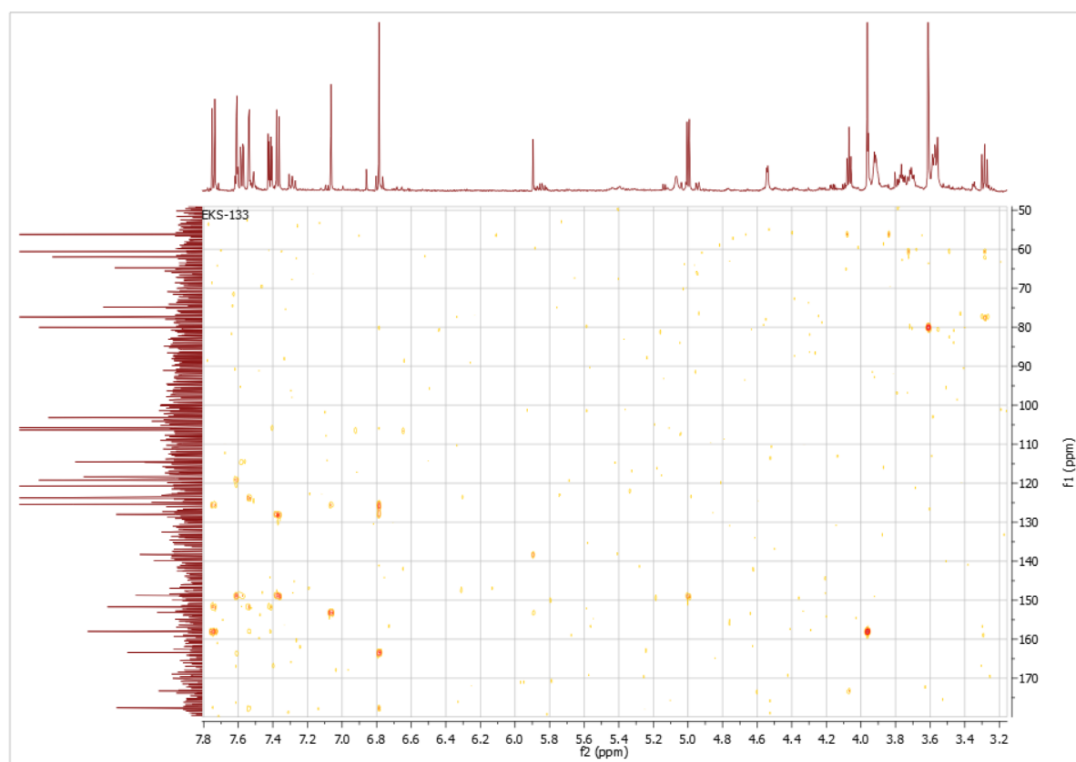
**Figure S119.**  $^{13}\text{C}$  NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5c) (Acetone- $d_6$ , 151 MHz)



**Figure S120.** HSQC NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5c) (Acetone- $d_6$ , 151 MHz)

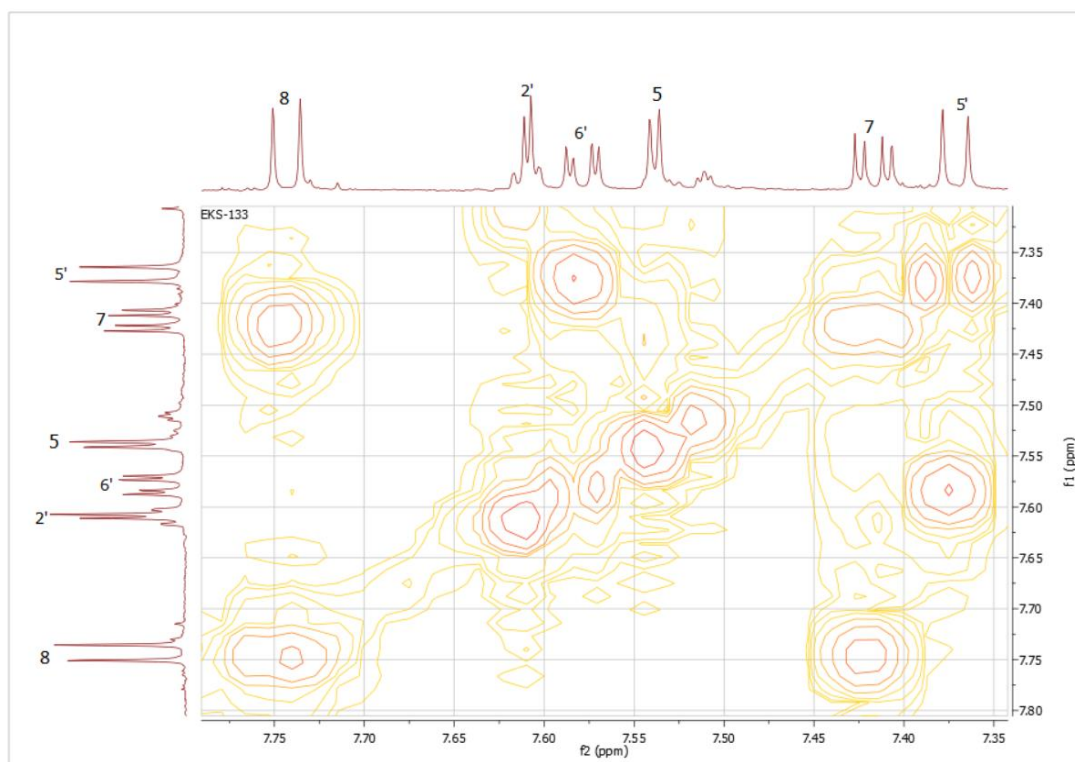


**Figure S121.** HSQC NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5c) (Acetone- $d_6$ , 151 MHz)



**Figure S122.** HMBC NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5c) (Acetone- $d_6$ , 151 MHz)





**Figure S123.** COSY NMR spectrum of 3'-hydroxy-6-methoxyflavone 4'-O- $\beta$ -D-(4''-O-methyl)-glucopyranoside (5c) (Acetone- $d_6$ , 600 MHz)