

Supplementary Materials

Title: Two Novel Quassinoid Glycosides with Antiviral Activity from the Samara of *Ailanthus altissima*

Authors: Qing-Wei Tan ^{1,*}†, Jian-Cheng Ni ²†, Jian-Ting Shi ¹, Jian-Xuan Zhu ¹ and Qi-Jian Chen ^{1,*}

S1. HRESIMS spectra of chuglycoside J (1).

S2. IR spectra of chuglycoside J (1).

S3. ¹H-NMR spectra of chuglycoside J (1) (500 MHz, Dimethyl sulfoxide-*d*₆).

S4. ¹³C NMR spectra of chuglycoside J (1) (125 MHz, Dimethyl sulfoxide-*d*₆).

S5. DEPT of chuglycoside J (1).

S6. ¹H-¹H COSY of chuglycoside J (1).

S7. HSQC of chuglycoside J (1).

S8. HMBC of chuglycoside J (1).

S9. NOESY of chuglycoside J (1).

S10. HRESIMS spectra of chuglycoside K (2).

S11. IR spectra of chuglycoside K (2).

S12. ¹H-NMR spectra of chuglycoside K (2) (500 MHz, Methanol-*d*₄).

S13. ¹³C NMR spectra of chuglycoside K (2) (125 MHz, Methanol-*d*₄).

S14. DEPT of chuglycoside K (2).

S15. ¹H-¹H COSY of chuglycoside K (2).

S16. HSQC of chuglycoside K (2).

S17. HMBC of chuglycoside K (2).

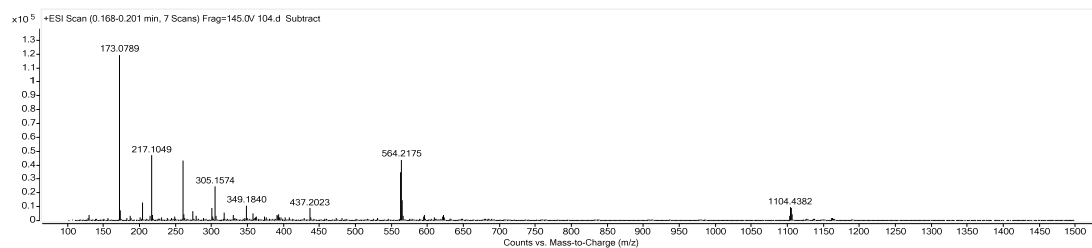
S18. NOESY of chuglycoside K (2).

S19. ¹H-NMR spectra of tetrahydro-2-(4-hydroxy-3-methoxyphenyl)-4-[(4-hydroxyphenyl) methyl]-3-furanmethanol (3) (500 MHz, Methanol-*d*₄).

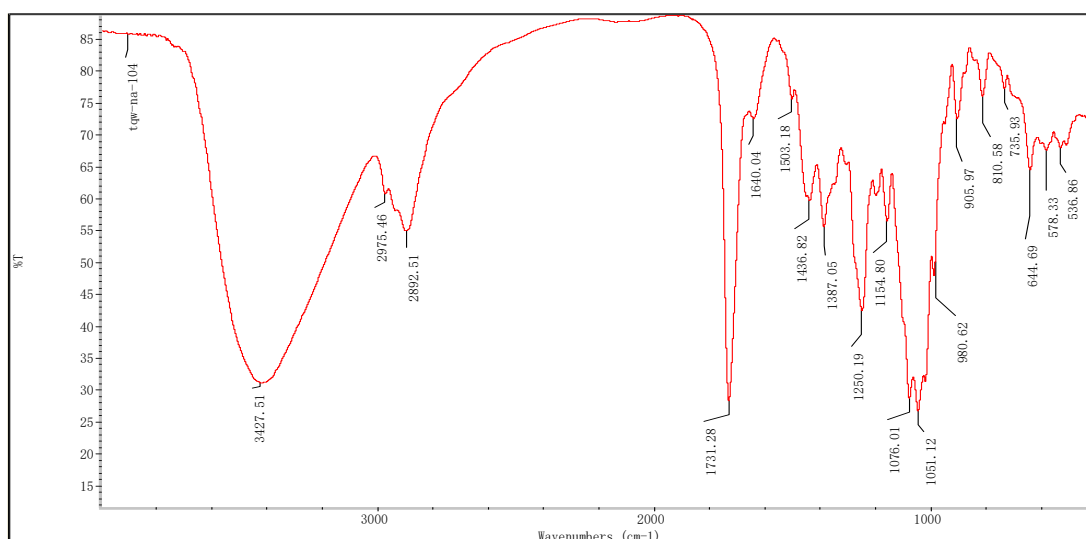
S20. ¹³C NMR spectra of tetrahydro-2-(4-hydroxy-3-methoxyphenyl)-4-[(4-hydroxyphenyl) methyl]-3-furanmethanol (3) (125 MHz, Methanol-*d*₄).

S21. ¹H-NMR spectra of (+)-lariciresinol (4) (500 MHz, Methanol-*d*₄).

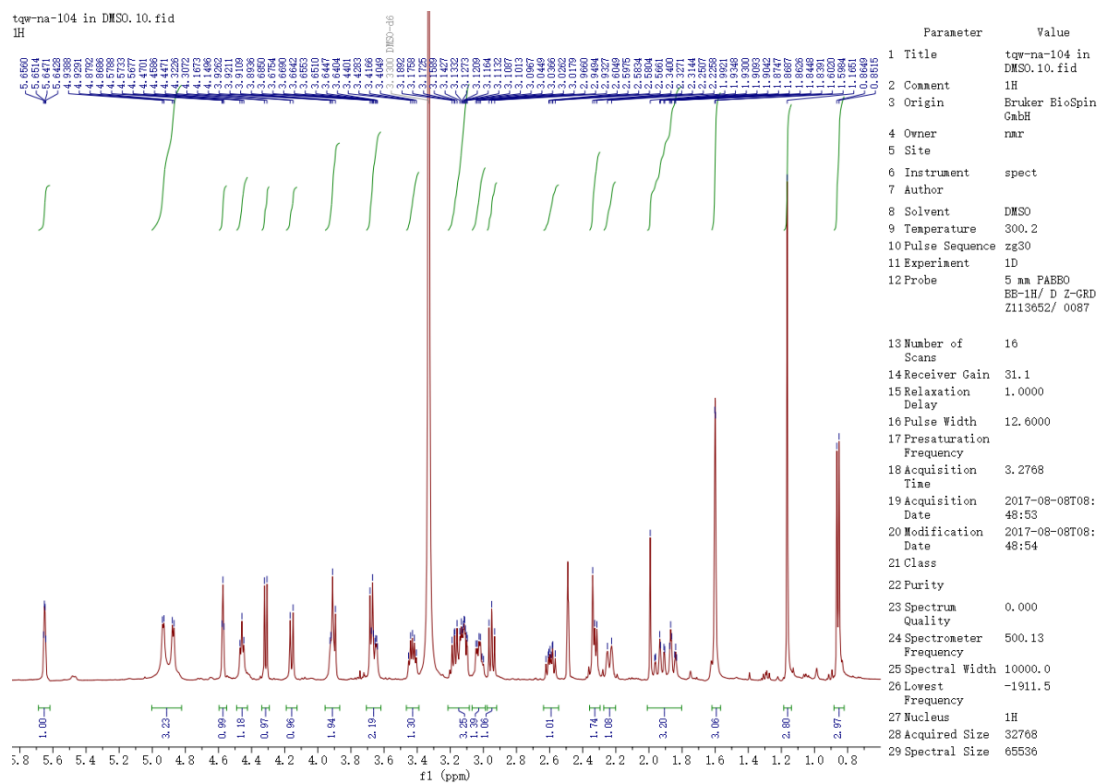
- S22. ¹³C NMR spectra of (+)-lariciresinol (**4**) (125 MHz, Methanol-*d*₄).
- S23. ¹H-NMR spectra of (+)-(1*R*,2*S*,5*R*,6*S*)-2,6-di(4'-hydroxyphenyl)-3,7-dioxabicyclo[3.3.0]octane (**5**) (500 MHz, Methanol-*d*₄).
- S24. ¹³C NMR spectra of (+)-(1*R*,2*S*,5*R*,6*S*)-2,6-di(4'-hydroxyphenyl)-3,7-dioxabicyclo[3.3.0]octane (**5**) (125 MHz, Methanol-*d*₄).
- S25. ¹H-NMR spectra of (+)-pinoresinol (**6**) (500 MHz, Methanol-*d*₄).
- S26. ¹³C NMR spectra of (+)-pinoresinol (**6**) (125 MHz, Methanol-*d*₄).
- S27. ¹H-NMR spectra of (+)-isolariciresinol (**7**) (500 MHz, Methanol-*d*₄).
- S28. ¹³C NMR spectra of (+)-isolariciresinol (**7**) (125 MHz, Methanol-*d*₄).
- S29. ¹H-NMR spectra of (+)-isolariciresinol 3*α*-*O*- β -glucopyranoside (**8**) (500 MHz, Methanol-*d*₄).
- S30. ¹³C NMR spectra of (+)-isolariciresinol 3*α*-*O*- β -glucopyranoside (**8**) (125 MHz, Methanol-*d*₄).
- S31. ¹H-NMR spectra of burselignan (**9**) (500 MHz, Methanol-*d*₄).
- S32. ¹³C NMR spectra of burselignan (**9**) (125 MHz, Methanol-*d*₄).
- S33. ¹H-NMR spectra of densispicoside (**10**) (500 MHz, Methanol-*d*₄).
- S34. ¹³C NMR spectra of densispicoside (**10**) (125 MHz, Methanol-*d*₄).
- S35. ¹H-NMR spectra of secoisolariciresinol (**11**) (500 MHz, Methanol-*d*₄).
- S36. ¹³C NMR spectra of secoisolariciresinol (**11**) (125 MHz, Methanol-*d*₄).
- S37. ¹H-NMR spectra of dehydroconiferyl alcohol (**12**) (500 MHz, Methanol-*d*₄).
- S38. ¹³C NMR spectra of dehydroconiferyl alcohol (**12**) (125 MHz, Methanol-*d*₄).
- S39. ¹H-NMR spectra of curcasinlignan B (**13**) (500 MHz, Methanol-*d*₄).
- S40. ¹³C NMR spectra of curcasinlignan B (**13**) (125 MHz, Methanol-*d*₄).
- S41. ¹H-NMR spectra of *erythro*-guaiacylglycerol- β -*O*-4'-coniferyl ether (**14**) (500 MHz, Methanol-*d*₄).
- S42. ¹³C NMR spectra of *erythro*-guaiacylglycerol- β -*O*-4'-coniferyl ether (**14**) (125 MHz, Methanol-*d*₄).
- S43. ¹H-NMR spectra of 7*R*,8*R*-*threo*-4,7,9,9'-tetrahydroxy-3,3'-dimethoxy-8-*O*-4'-neolignan (**15**) (500 MHz, Methanol-*d*₄).
- S44. ¹³C NMR spectra of 7*R*,8*R*-*threo*-4,7,9,9'-tetrahydroxy-3,3'-dimethoxy-8-*O*-4'-neolignan (**15**) (125 MHz, Methanol-*d*₄).
- S45. ¹H-NMR spectra of *threo*-2,3-*bis*-(4-hydroxy-3-methoxyphenyl)-3-methoxypropanol (**16**) (500 MHz, Methanol-*d*₄).
- S46. ¹³C NMR spectra of *threo*-2,3-*bis*-(4-hydroxy-3-methoxyphenyl)-3-methoxypropanol (**16**) (125 MHz, Methanol-*d*₄).



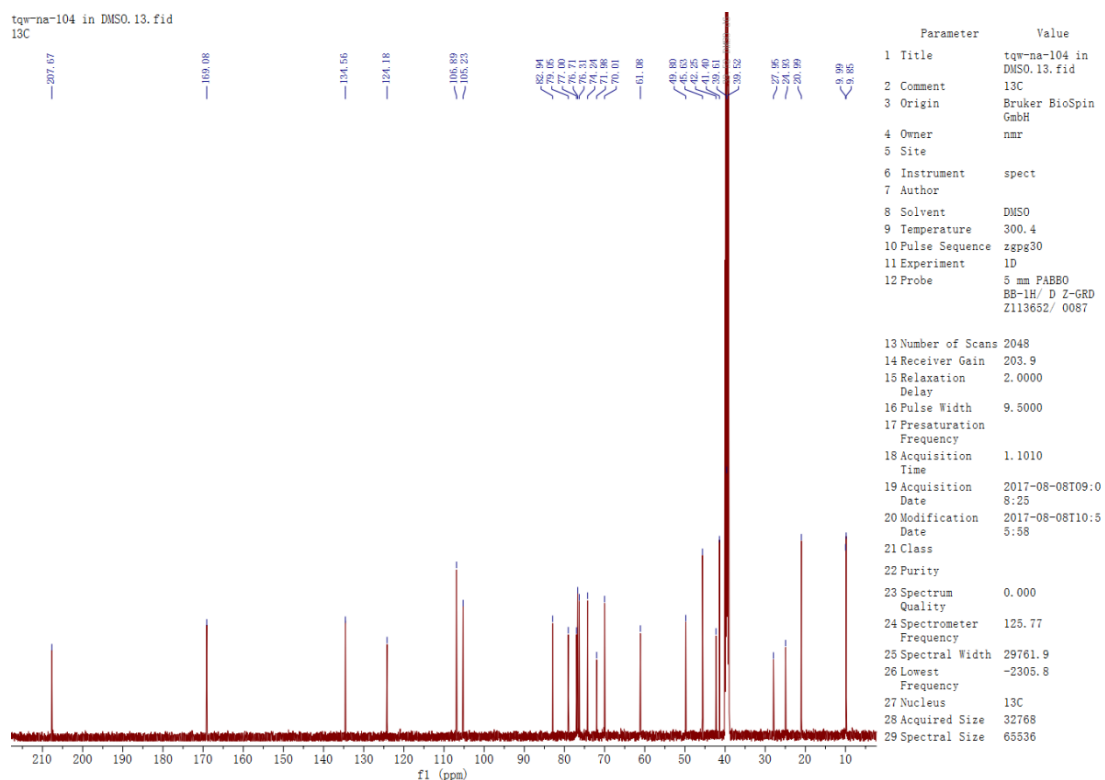
S1. HRESIMS spectra of chuglycoside J (1).



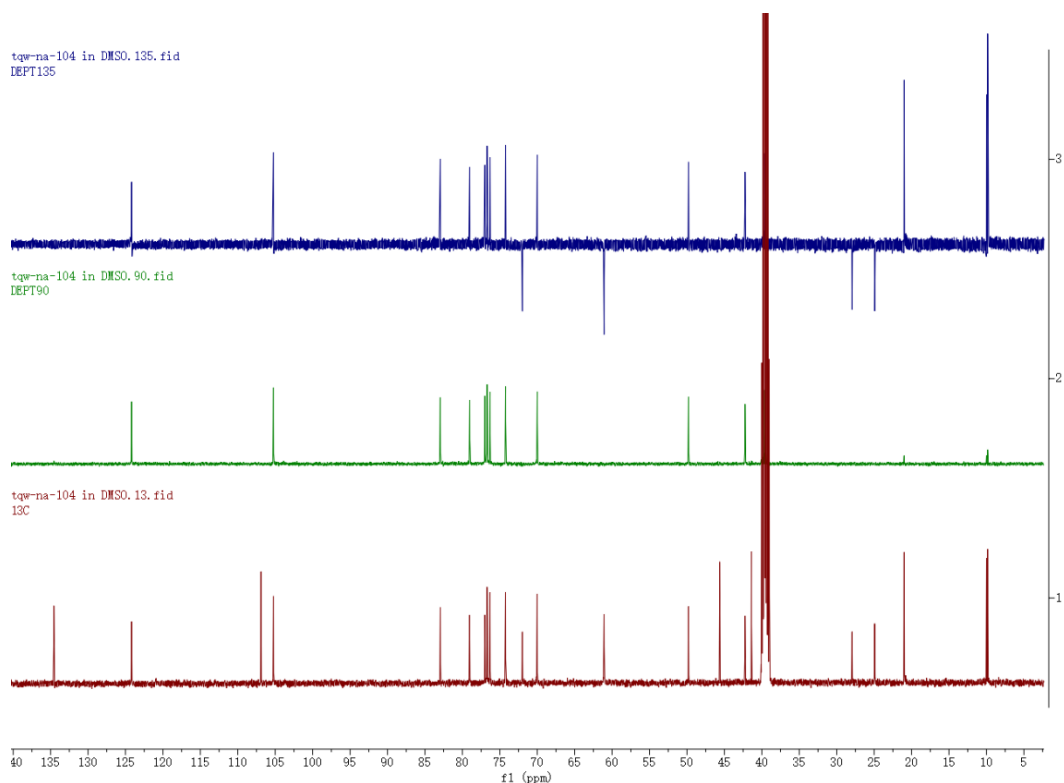
S2. IR spectra of chuglycoside J (1).



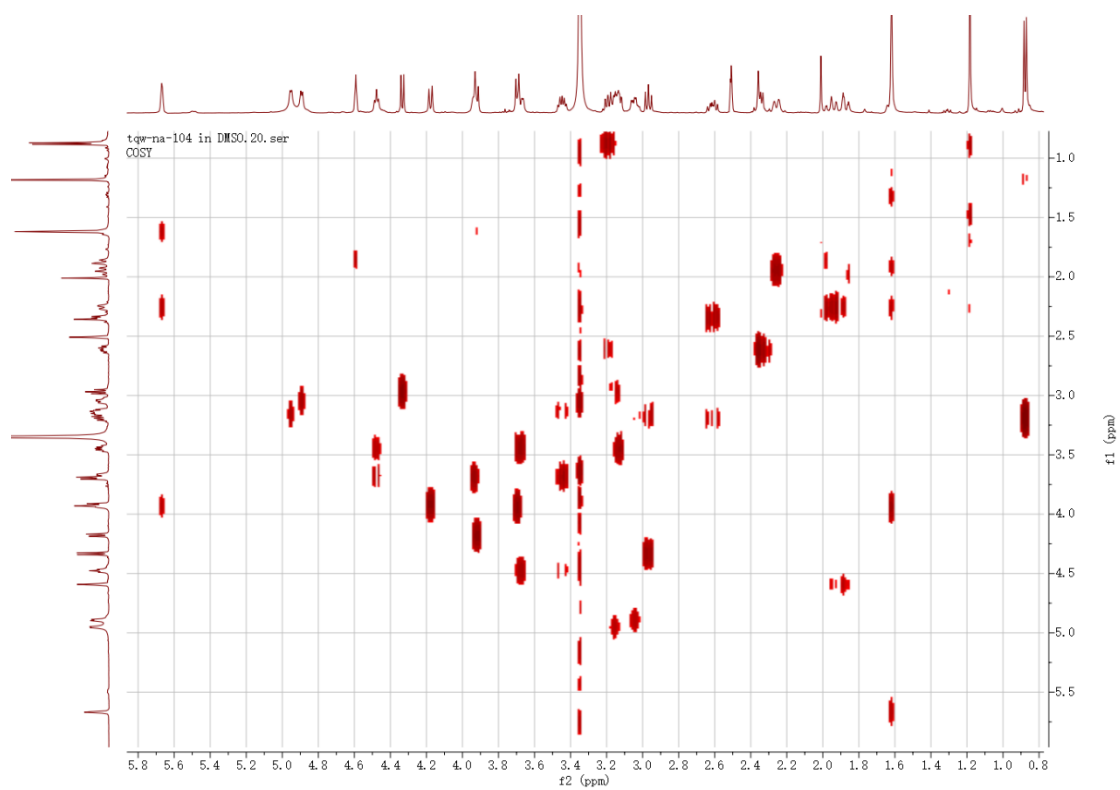
S3. ¹H-NMR spectra of chuglycoside J (1) (500 MHz, Dimethyl sulfoxide-*d*₆).



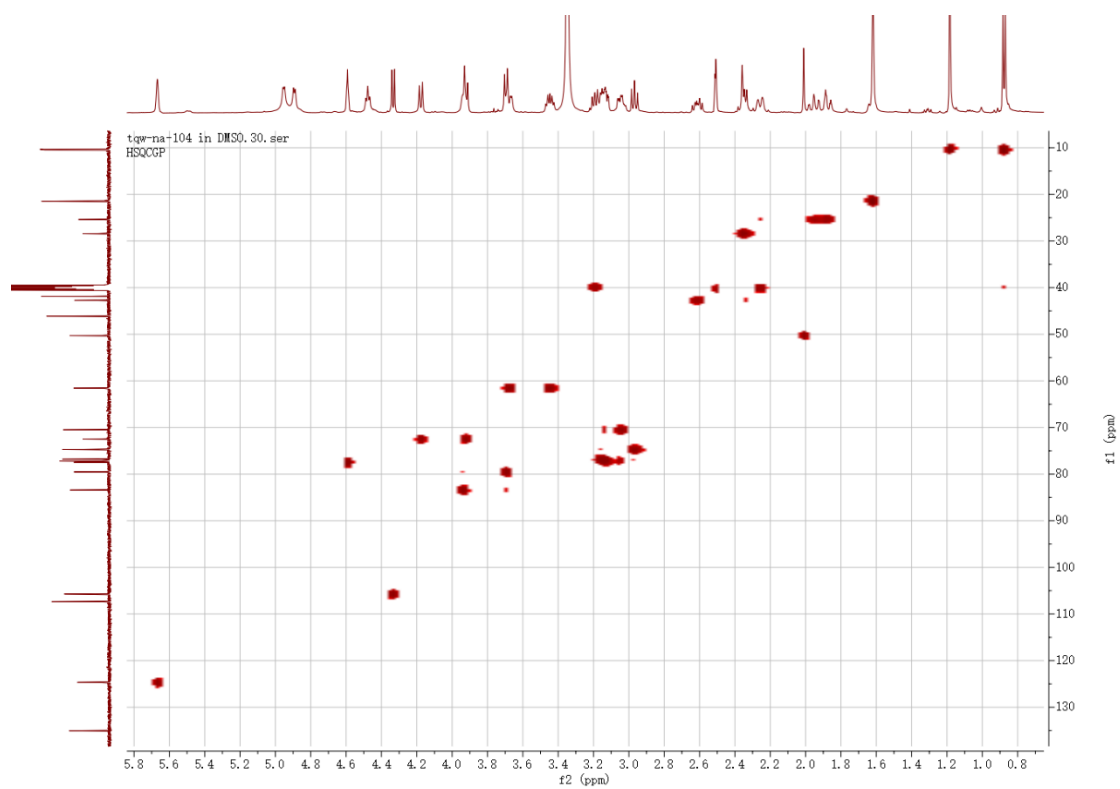
S4. ^{13}C NMR spectra of chuglycoside J (**1**) (125 MHz, Dimethyl sulfoxide- d_6).



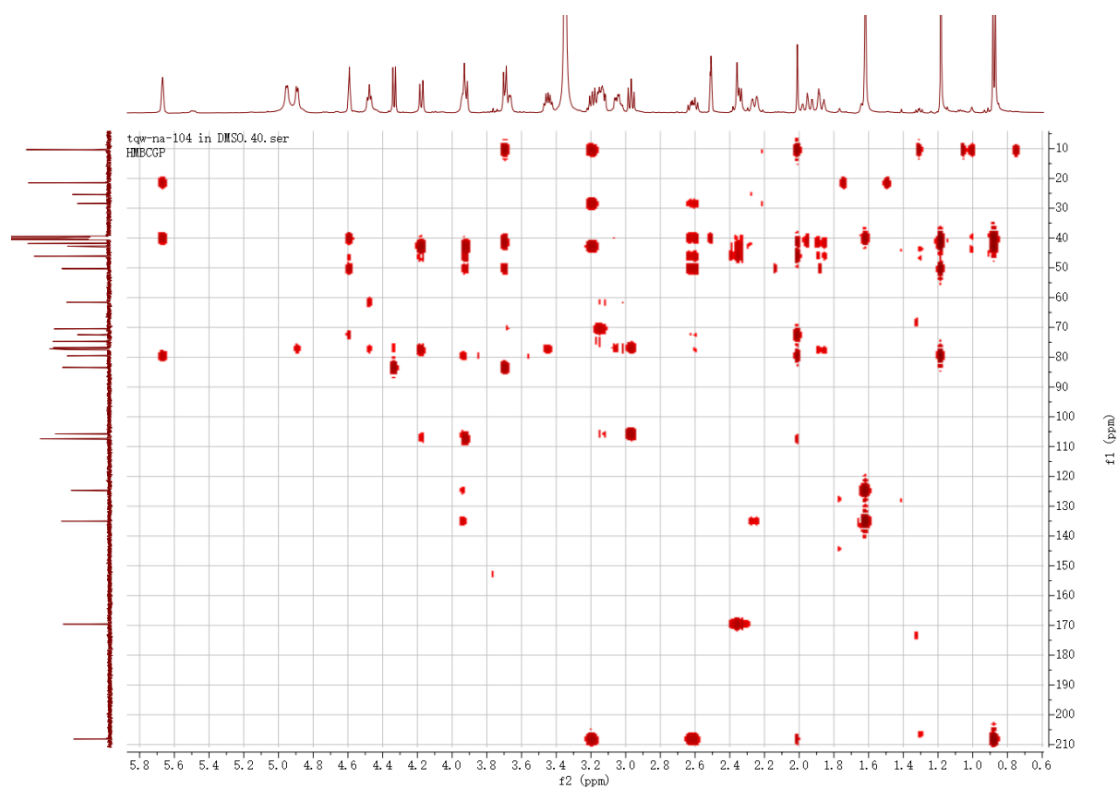
S5. DEPT of chuglycoside J (**1**).



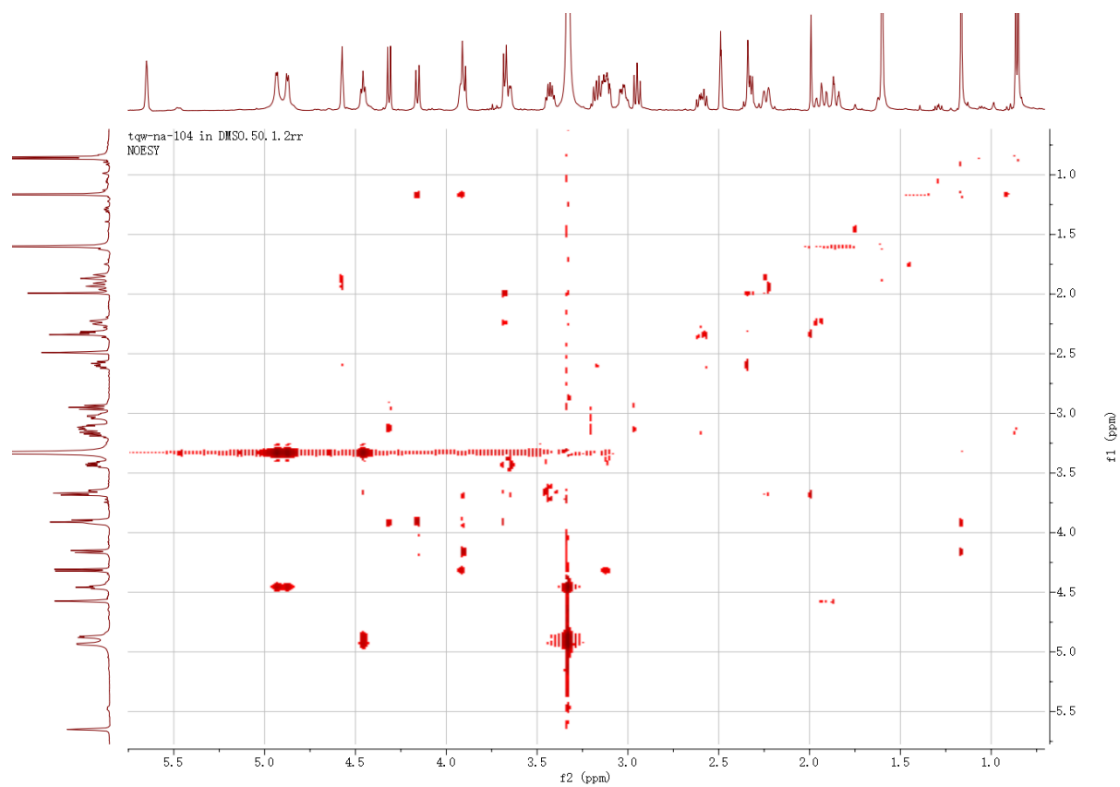
S6. ^1H - ^1H COSY of chuglycoside J (1).



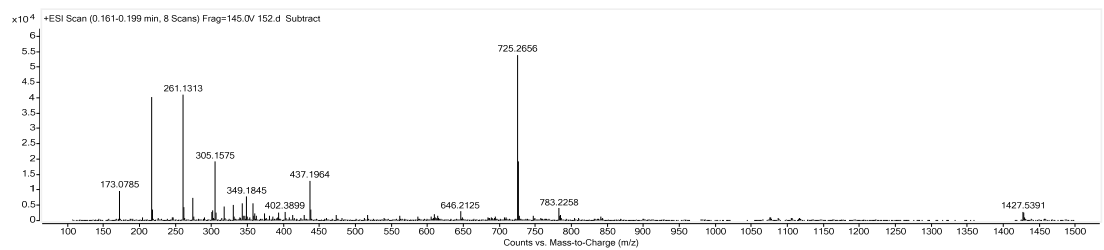
S7. HSQC of chuglycoside J (1).



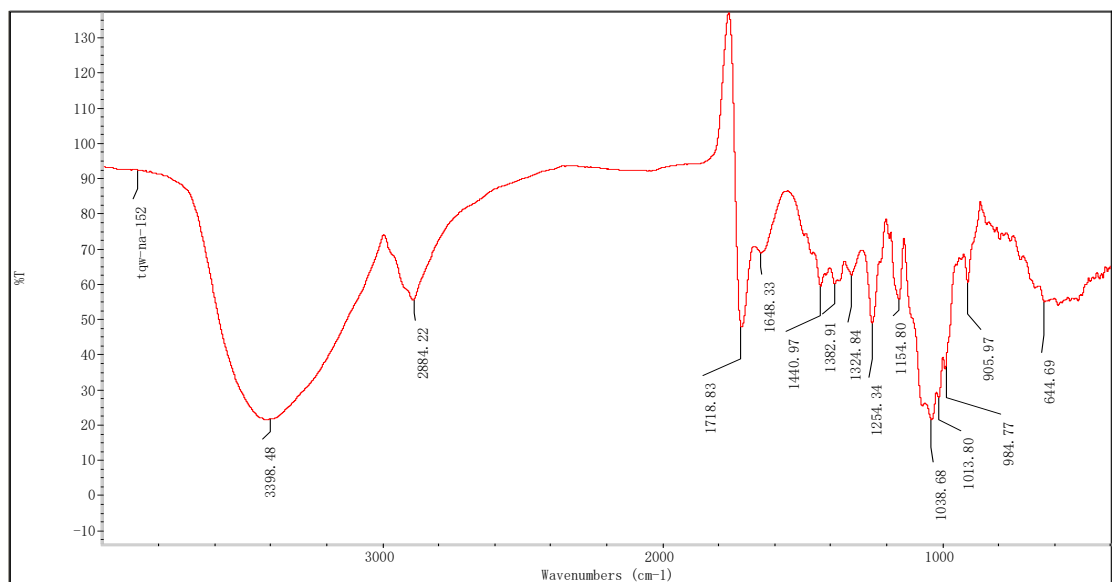
S8. HMBC of chuglycoside J (1).



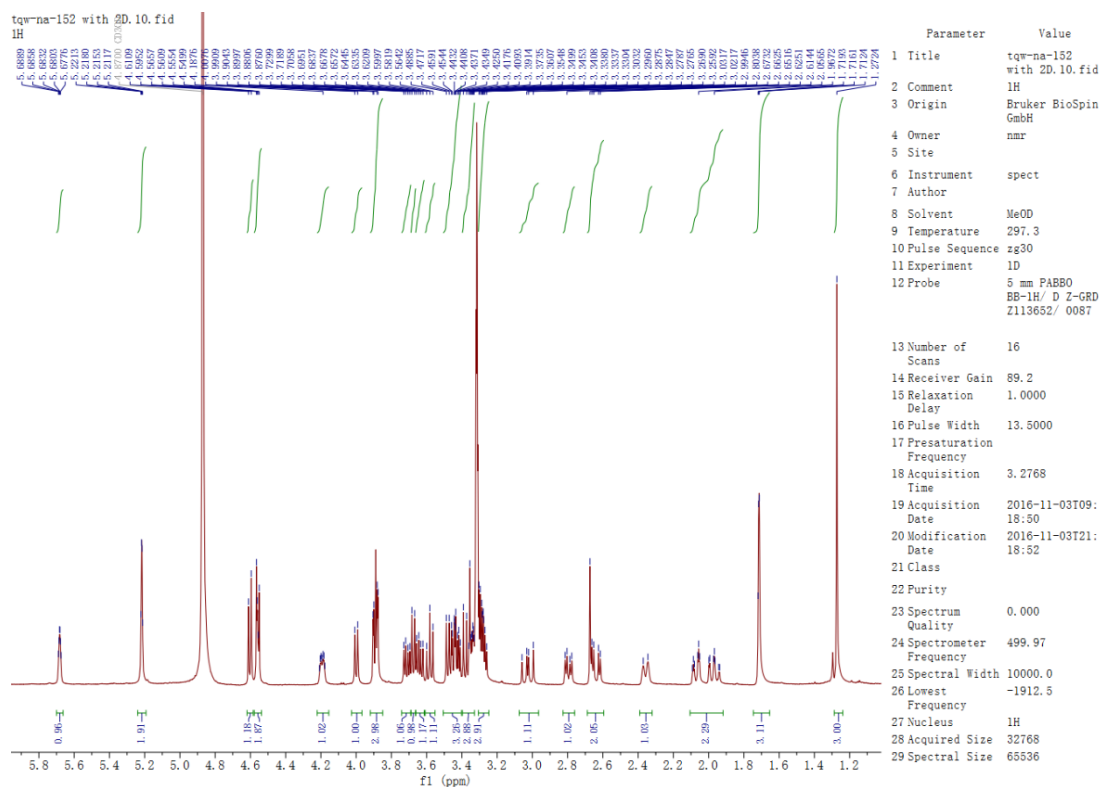
S9. NOESY of chuglycoside J (1).



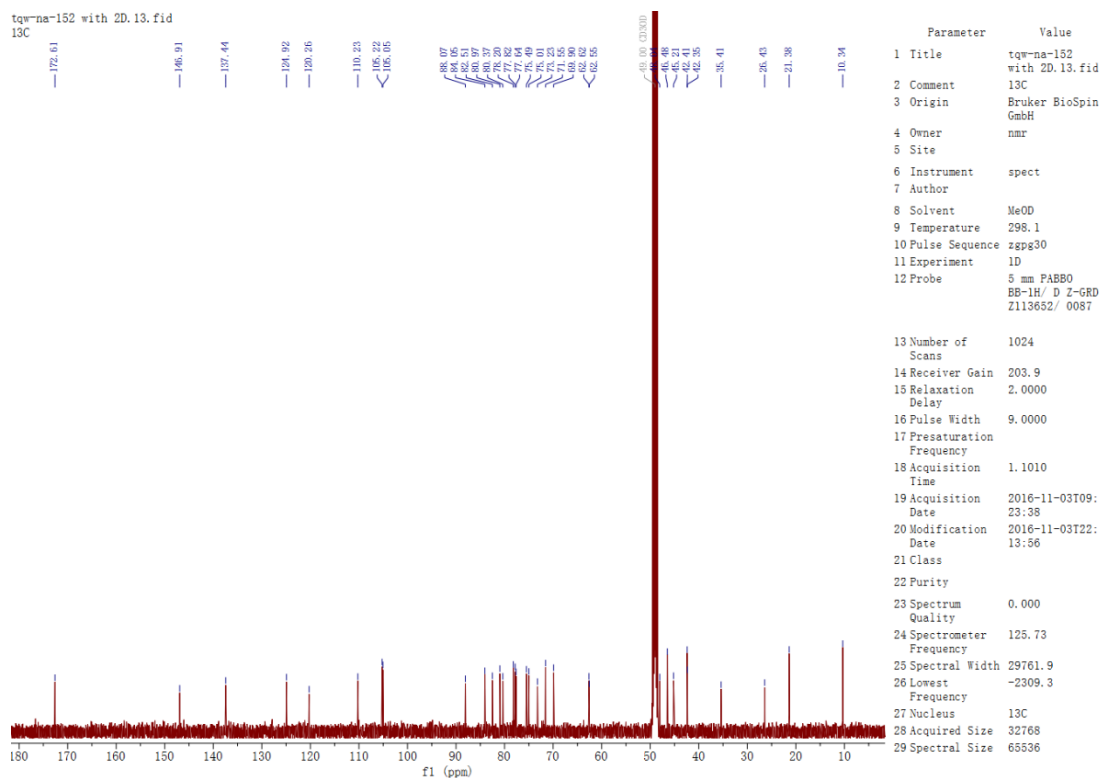
S10. HRESIMS spectra of chuglycoside K (2).



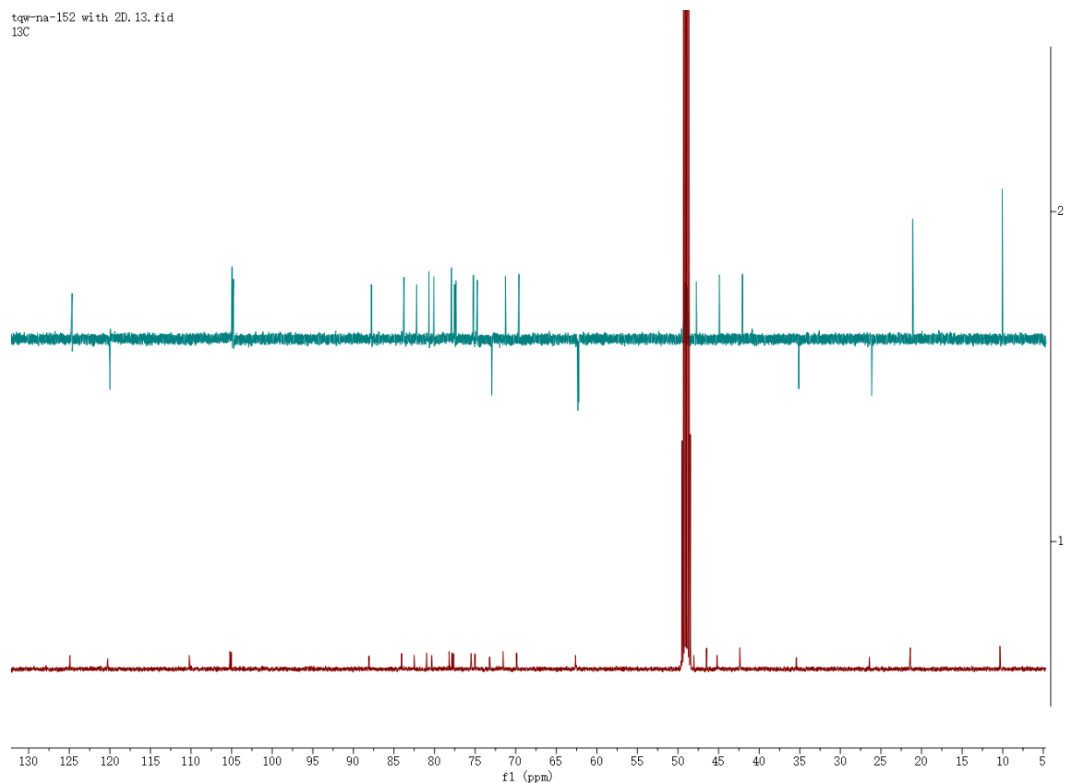
S11. IR spectra of chuglycoside K (2).



S12. ¹H-NMR spectra of chuglycoside K (2) (500 MHz, Methanol-*d*₄).



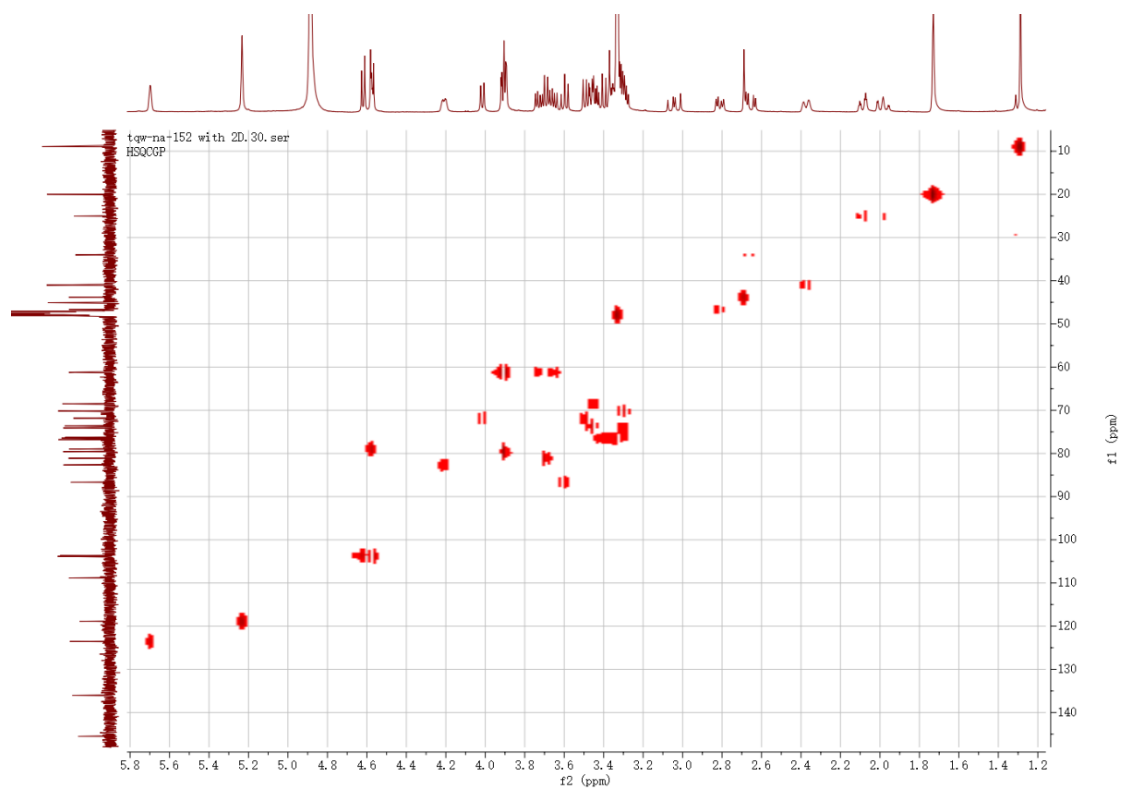
S13. ^{13}C NMR spectra of chuglycoside K (2) (125 MHz, Methanol- d_4).



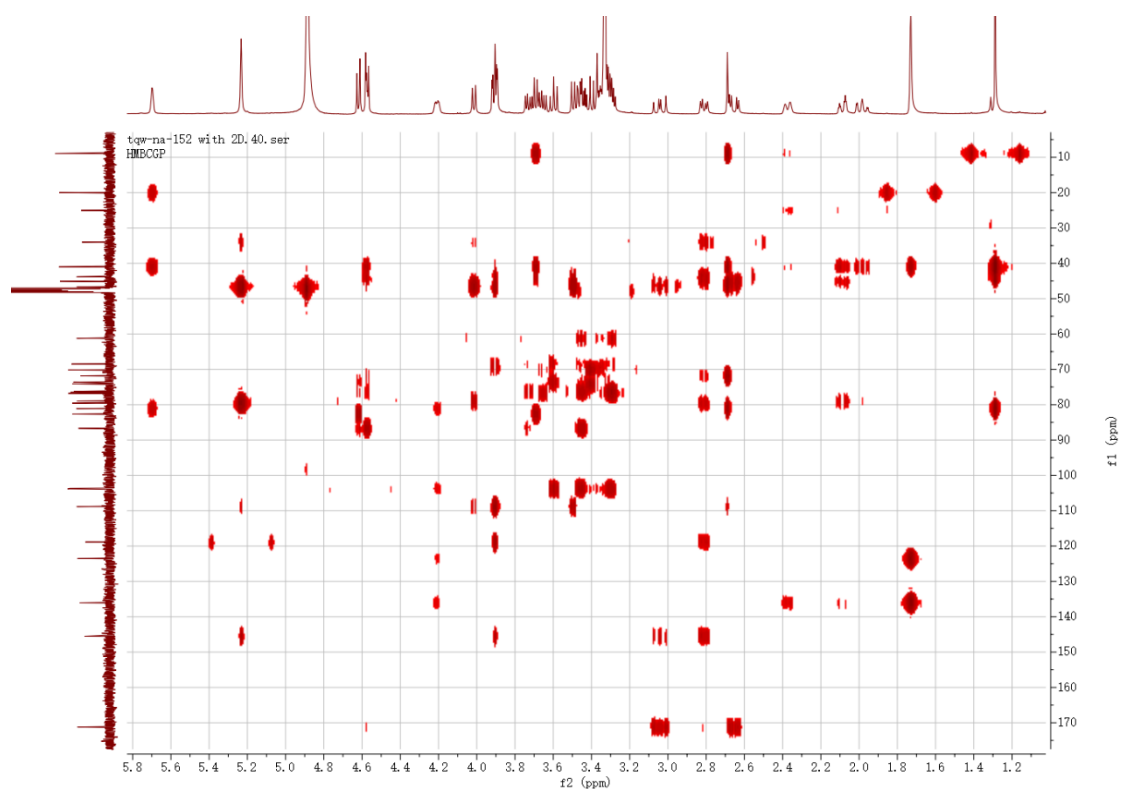
S14. DEPT of chuglycoside K (2).



S15. ^1H - ^1H COSY of chuglycoside K (2).



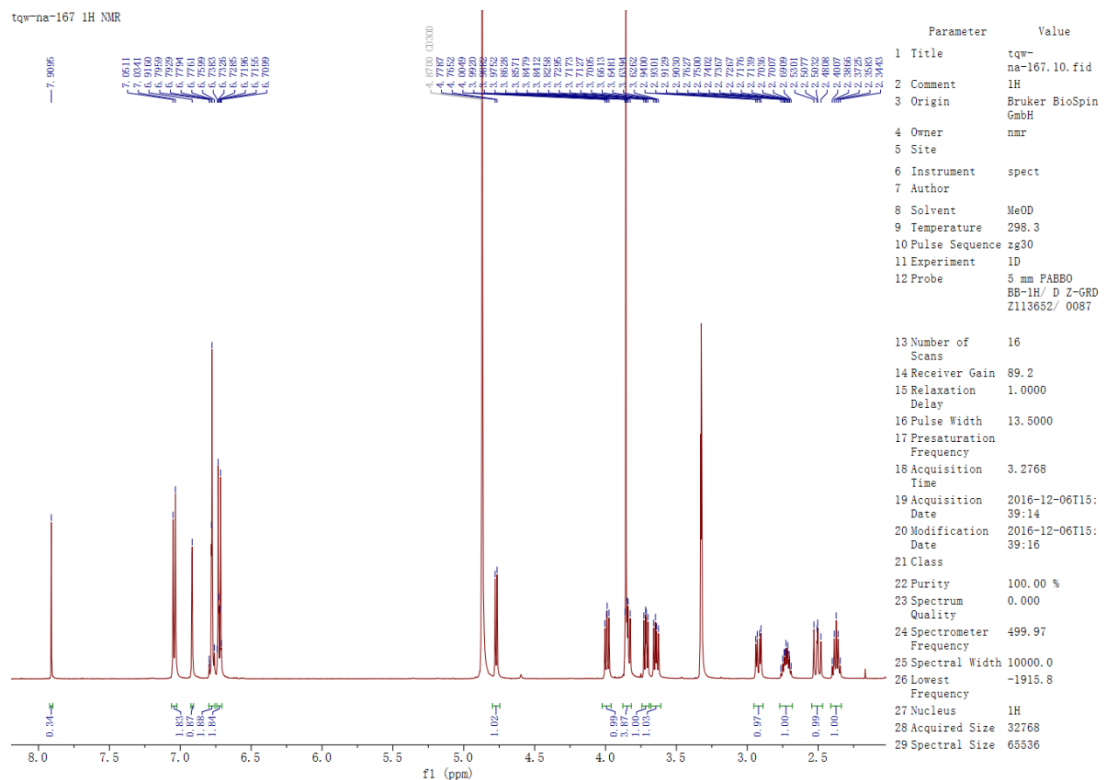
S16. HSQC of chuglycoside K (2).



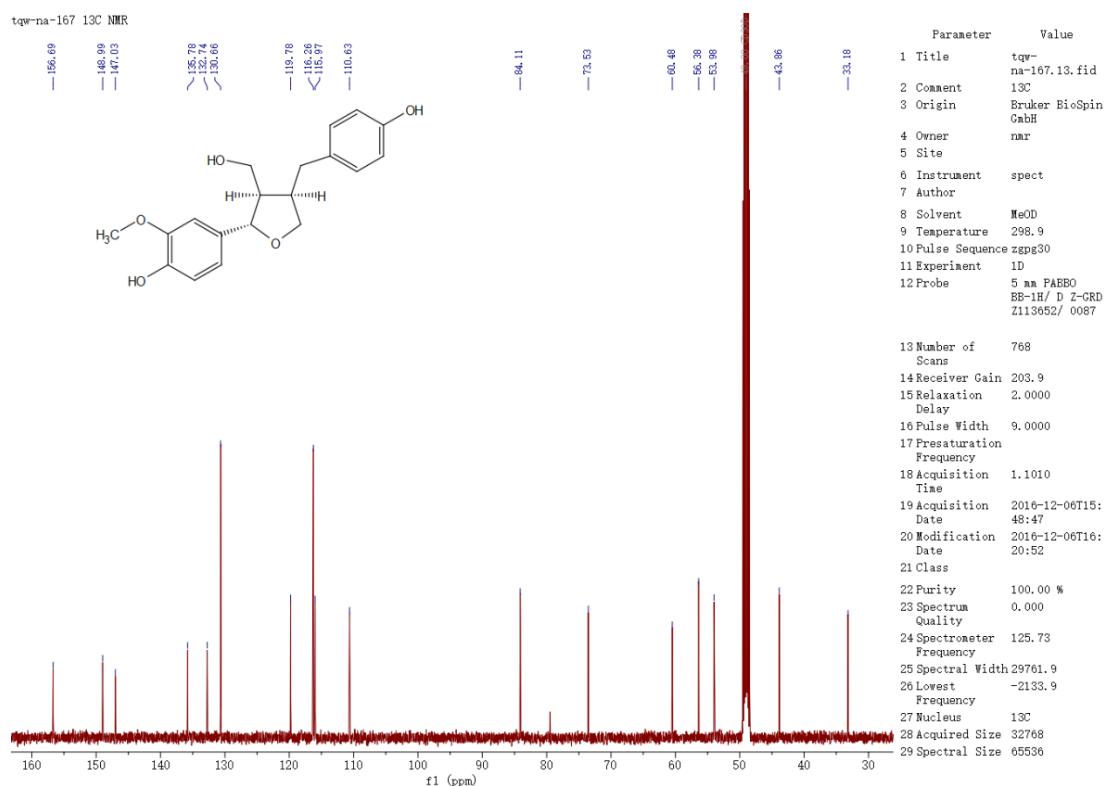
S17. HMBC of chuglycoside K (2).



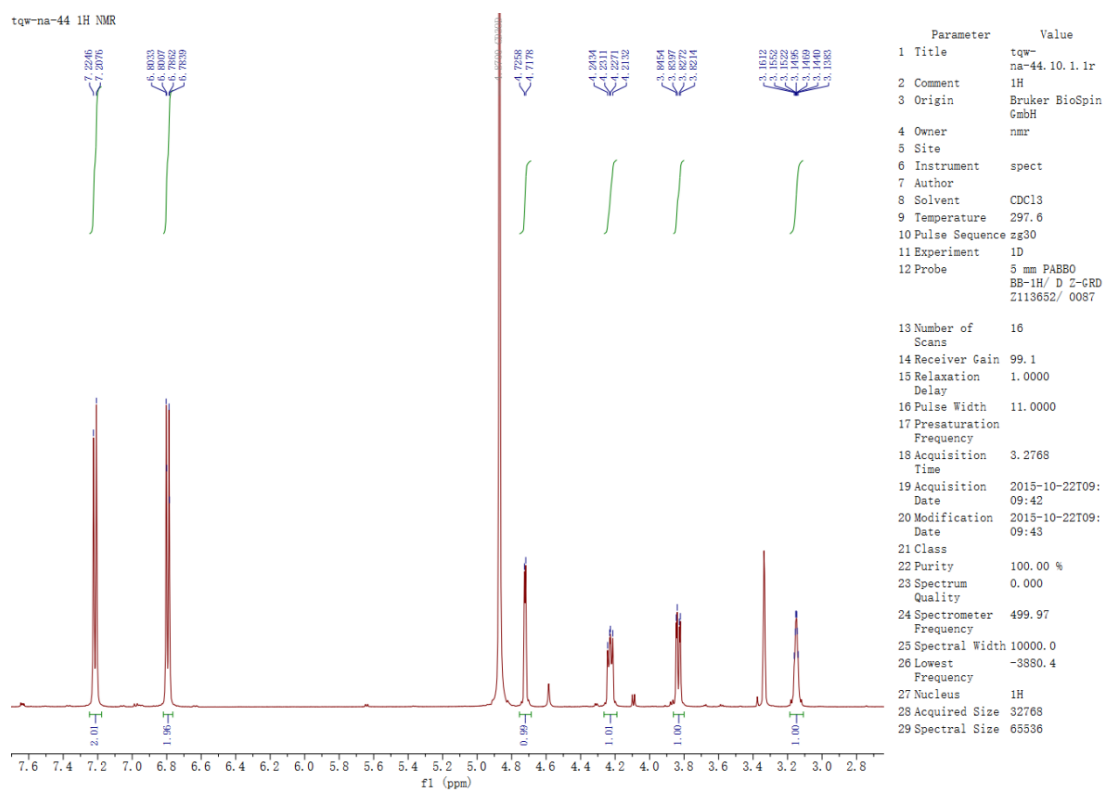
S18. NOESY of chuglycoside K (2).



S19. ¹H-NMR spectra of tetrahydro-2-(4-hydroxy-3-methoxyphenyl)-4-[(4-hydroxyphenyl) methyl]-3-furanmethanol (3) (500 MHz, Methanol-*d*₄).

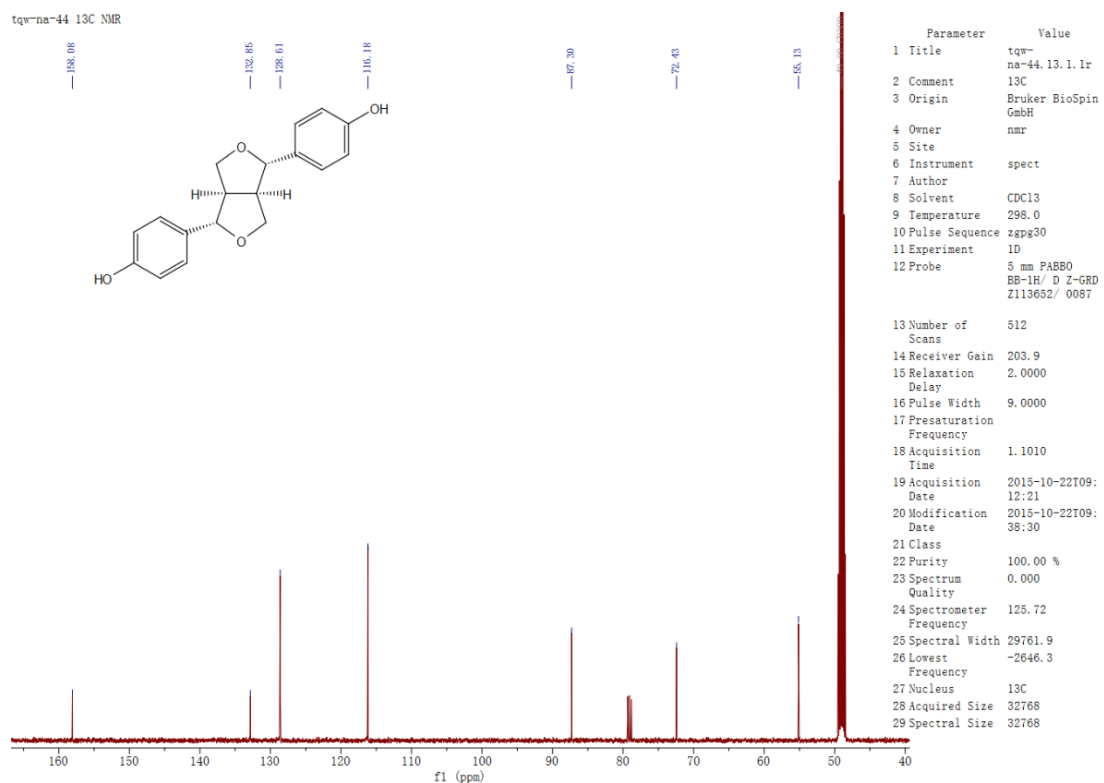


S20. ¹³C NMR spectra of tetrahydro-2-(4-hydroxy-3-methoxyphenyl)-4-[(4-hydroxyphenyl) methyl]-3-furanmethanol (3) (125 MHz, Methanol-*d*₄).



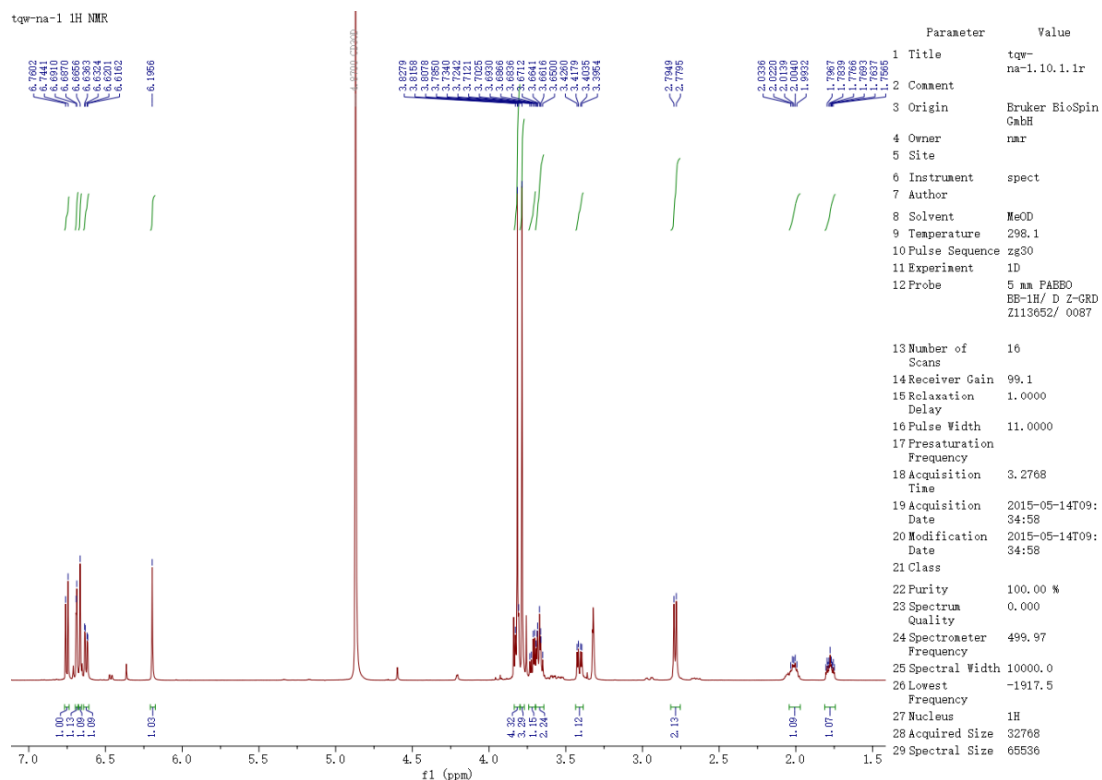
S23. ¹H-NMR spectra of (+)-(1R,2S,5R,6S)-2,6-di(4'-hydroxyphenyl)-3,7-dioxabicyclo[3.3.0]octane (5) (500 MHz, Chloroform-

d).

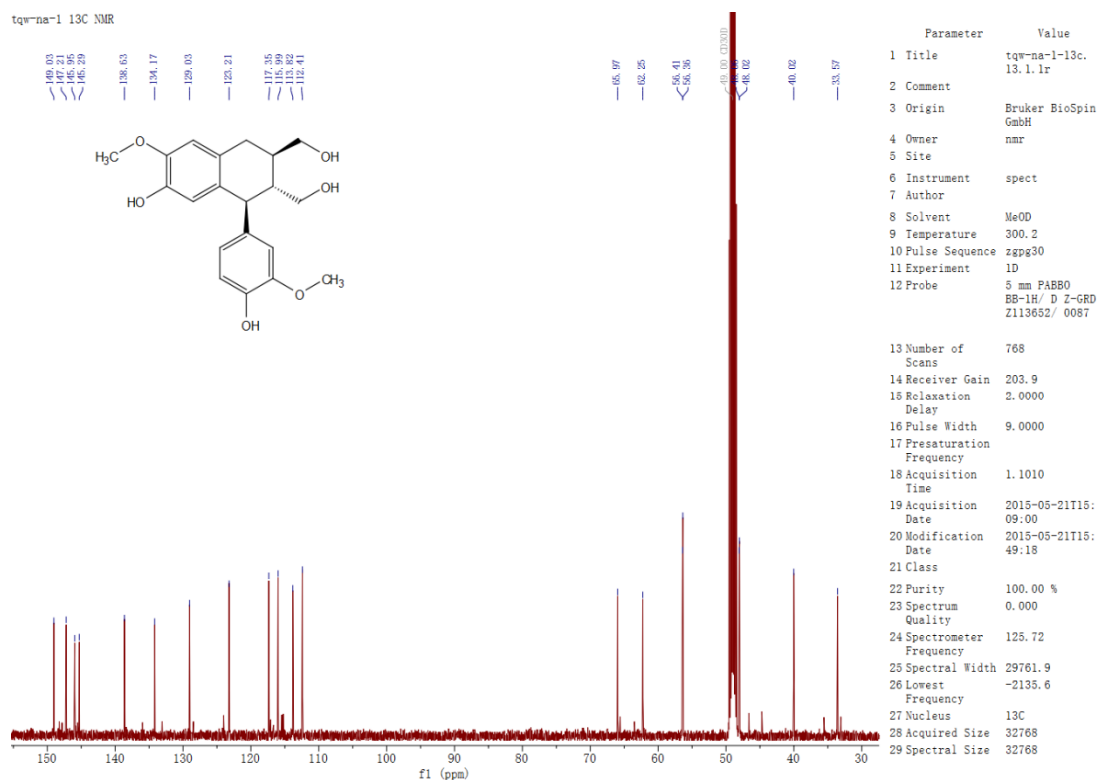


S24. ¹³C NMR spectra of (+)-(1R,2S,5R,6S)-2,6-di(4'-hydroxyphenyl)-3,7-dioxabicyclo[3.3.0]octane (5) (125 MHz, Chloroform-

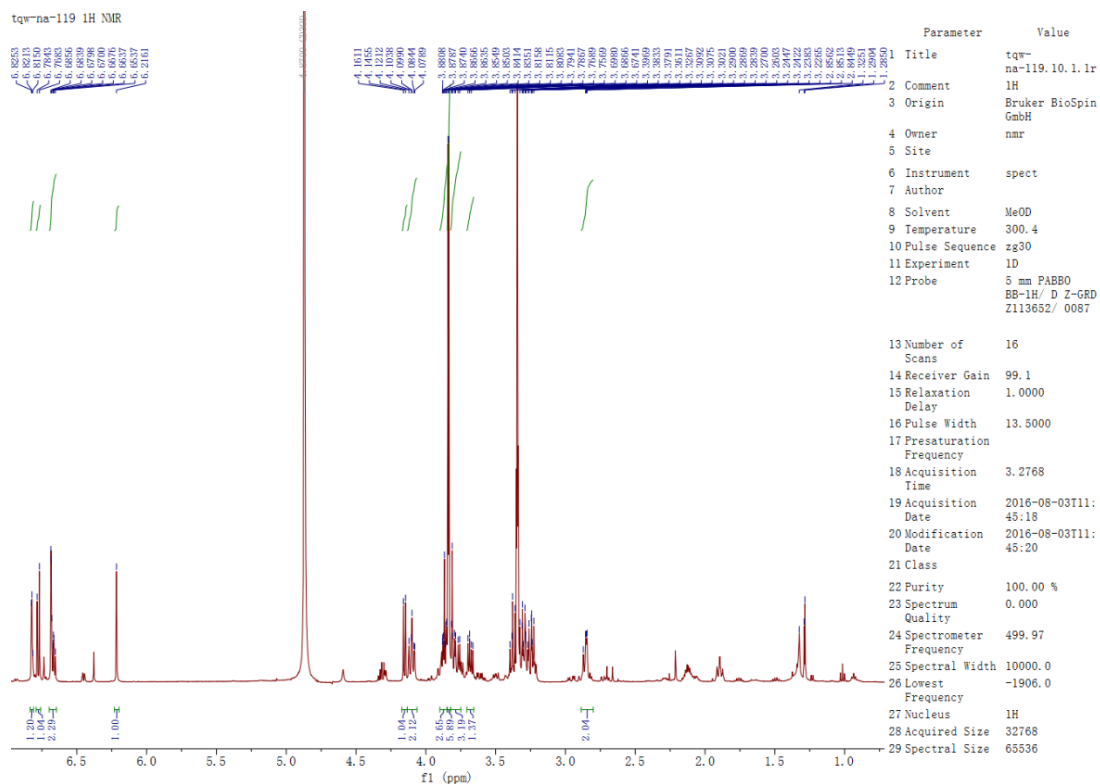
d).



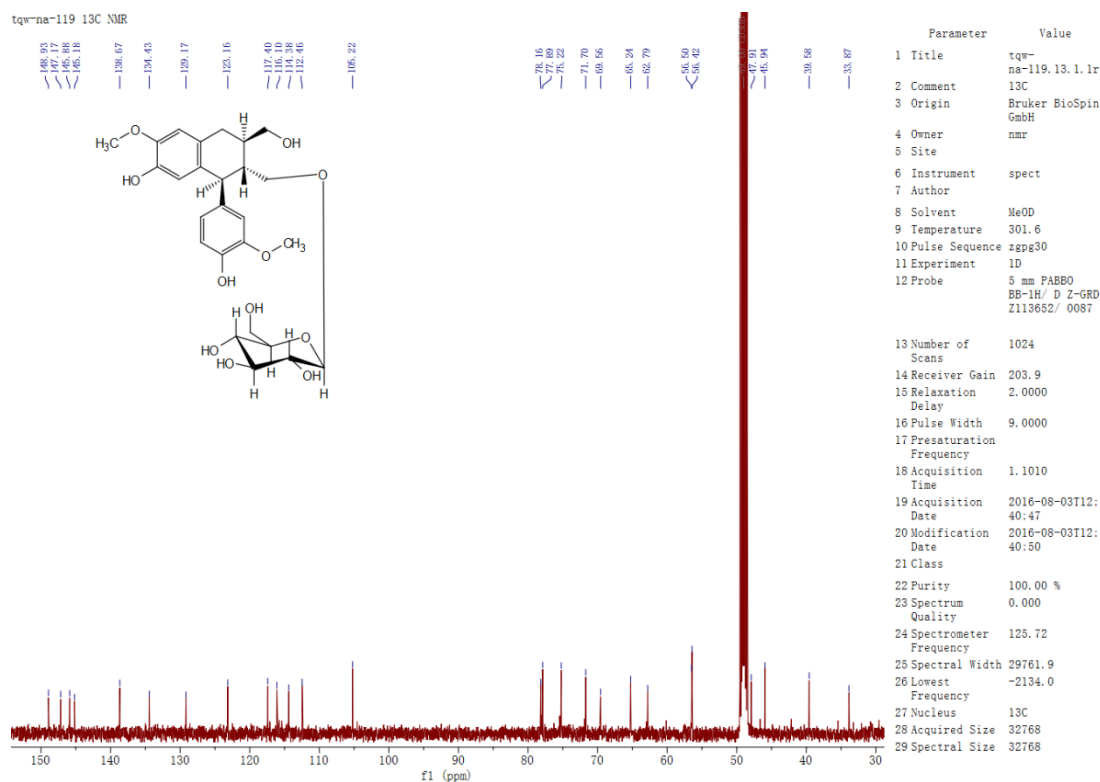
S27. ¹H-NMR spectra of (+)-isolariciresinol (7) (500 MHz, Methanol-*d*₄).



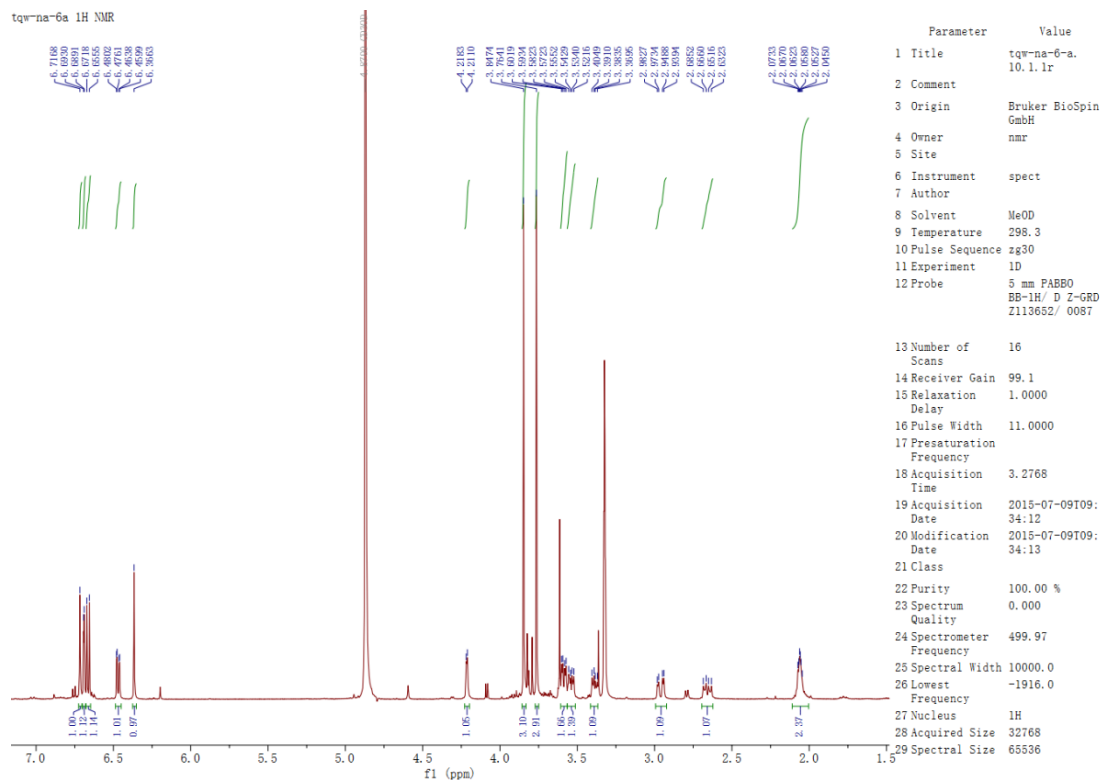
S28. ¹³C NMR spectra of (+)-isolariciresinol (7) (125 MHz, Methanol-*d*₄).



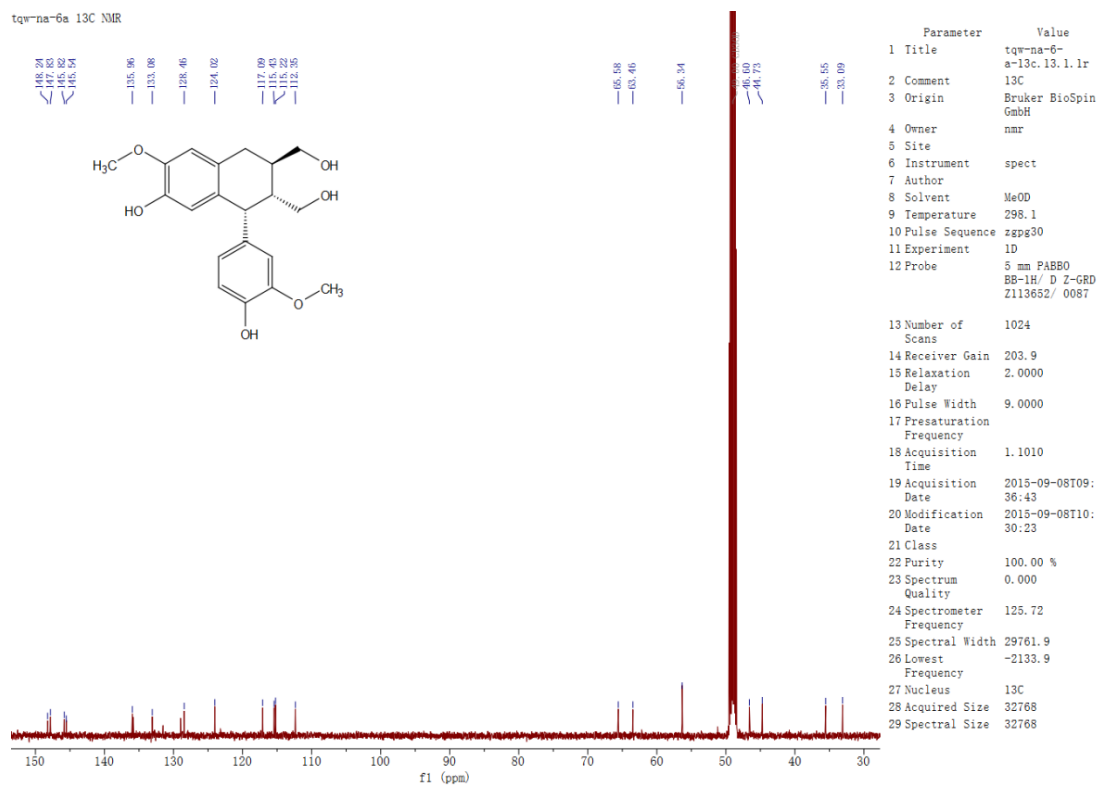
S29. ¹H-NMR spectra of (+)-isolariciresinol 3α-O-β-glucopyranoside (8) (500 MHz, Methanol-*d*₄).



S30. ¹³C NMR spectra of (+)-isolariciresinol 3α-O-β-glucopyranoside (8) (125 MHz, Methanol-*d*₄).

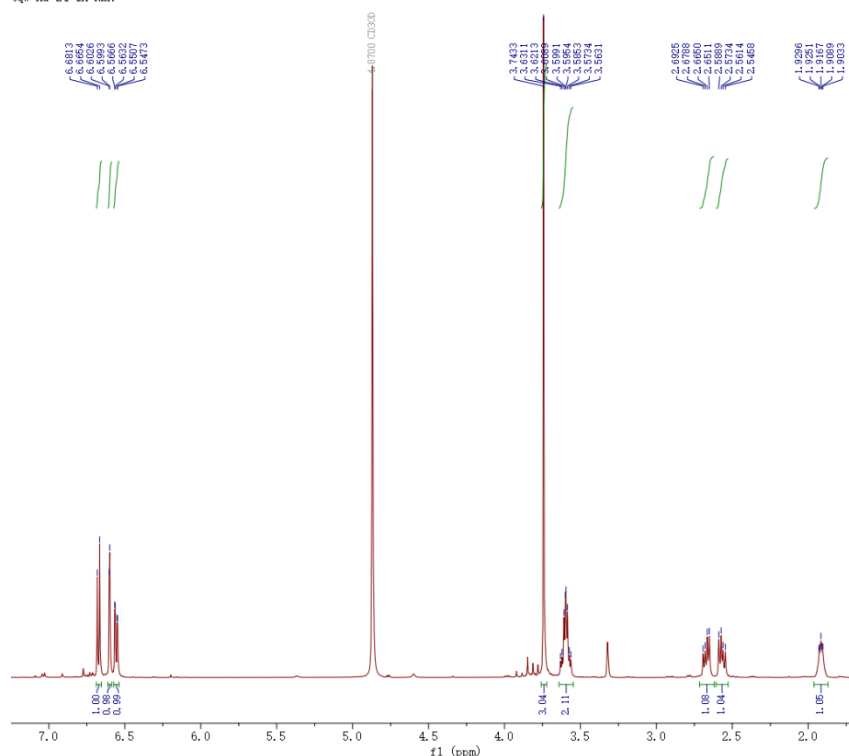


S31. ¹H-NMR spectra of burselignan (9) (500 MHz, Methanol-*d*₄).



S32. ¹³C NMR spectra of burselignan (9) (125 MHz, Methanol-*d*₄).

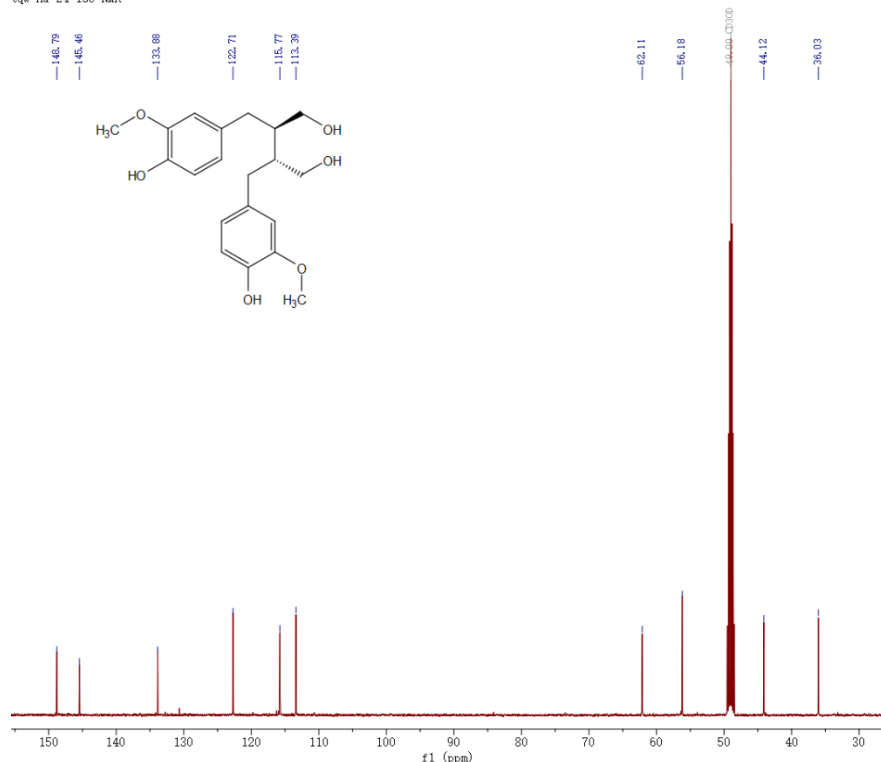
tqw-na-24 1H NMR



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6 Instrument	spect
7 Author	
8 Solvent	MeOD
9 Temperature	298.3
10 Pulse Sequence	zg30
11 Experiment	1D
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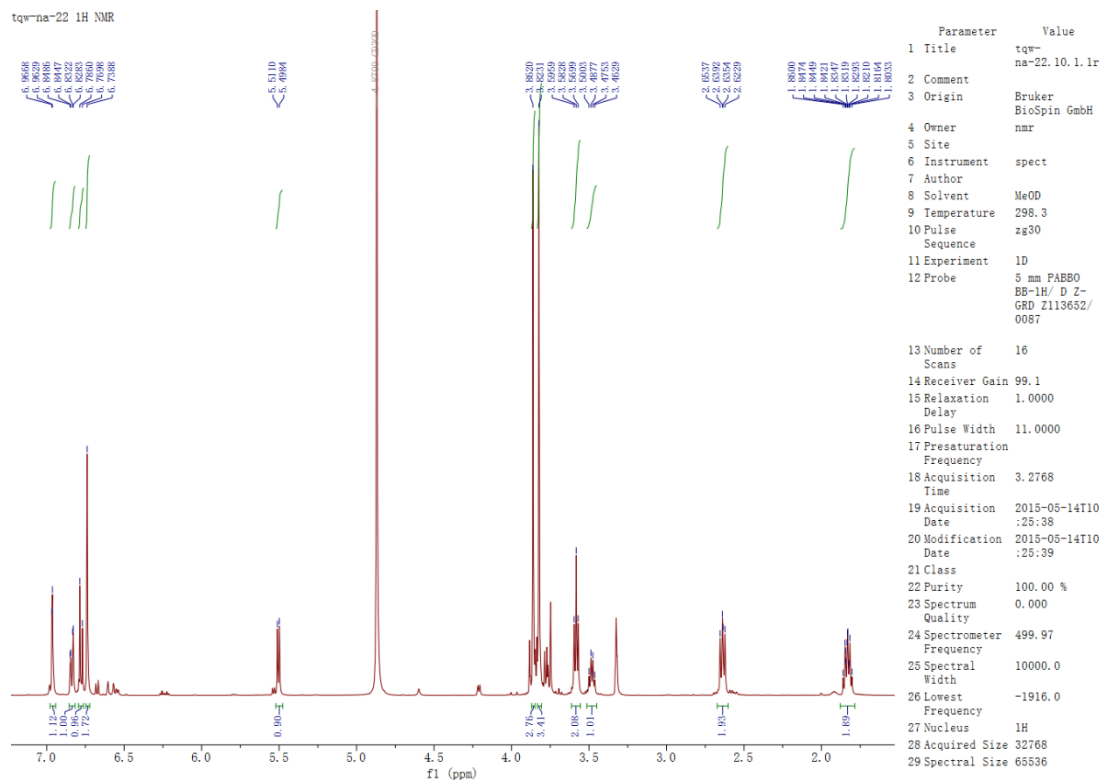
S35. ¹H-NMR spectra of secoisolariciresinol (11) (500 MHz, Methanol-*d*₄).

tqw-na-24 13C NMR

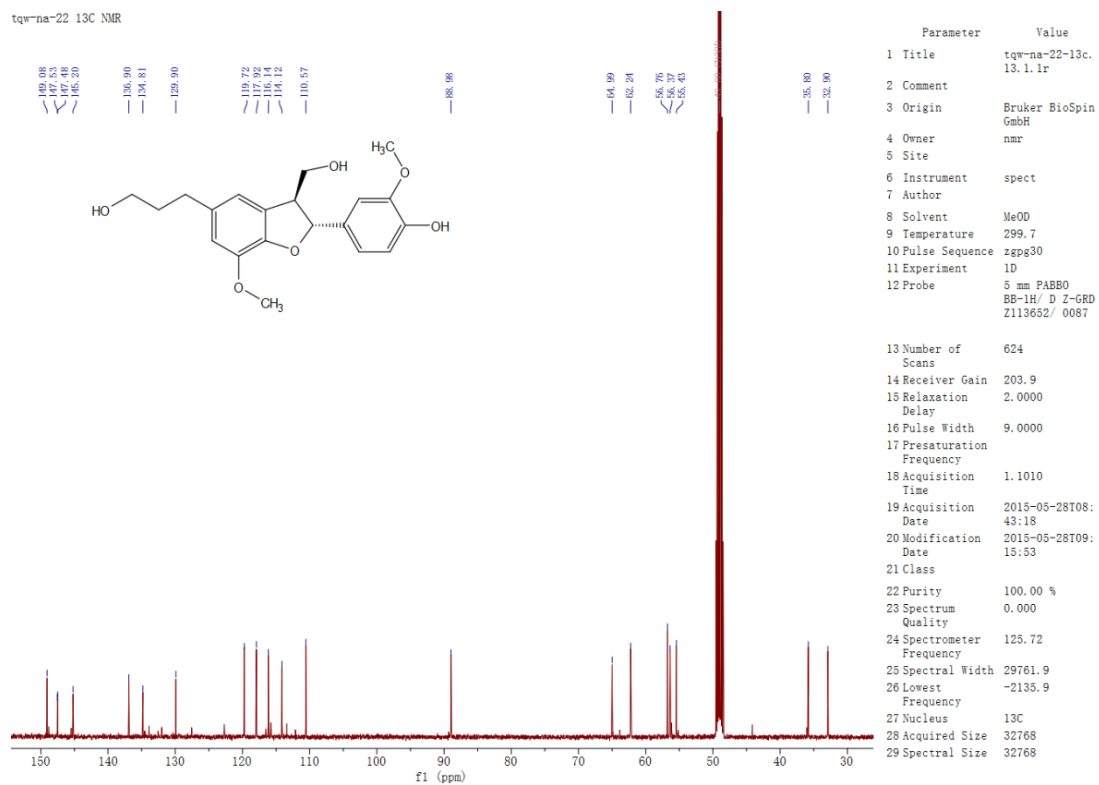


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S36. ¹³C NMR spectra of secoisolariciresinol (11) (125 MHz, Methanol-*d*₄).

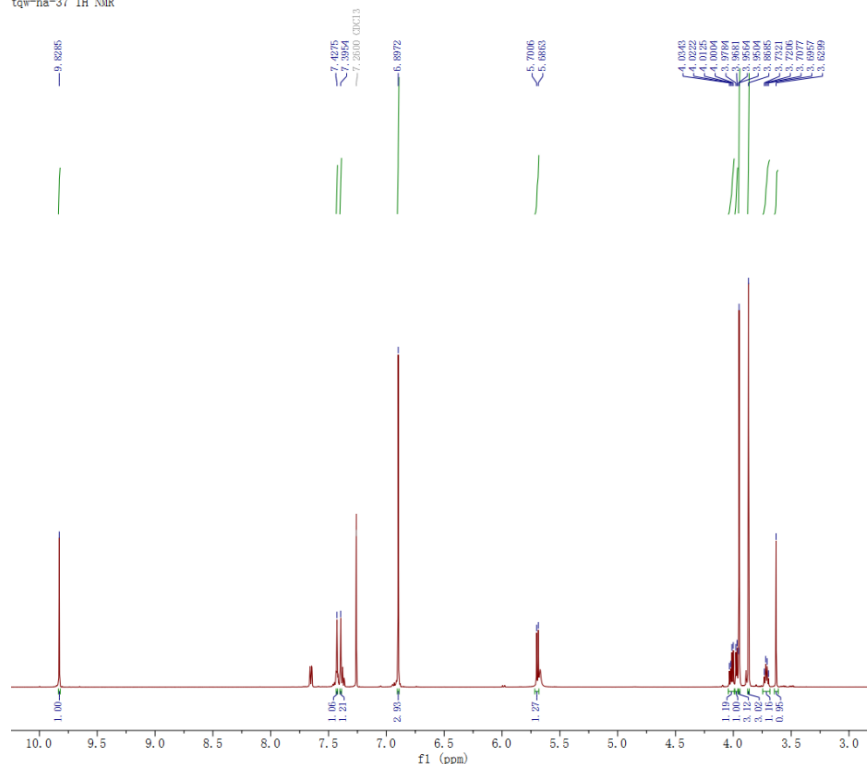


S37. ¹H-NMR spectra of dehydroconiferyl alcohol (**12**) (500 MHz, Methanol-*d*₄).

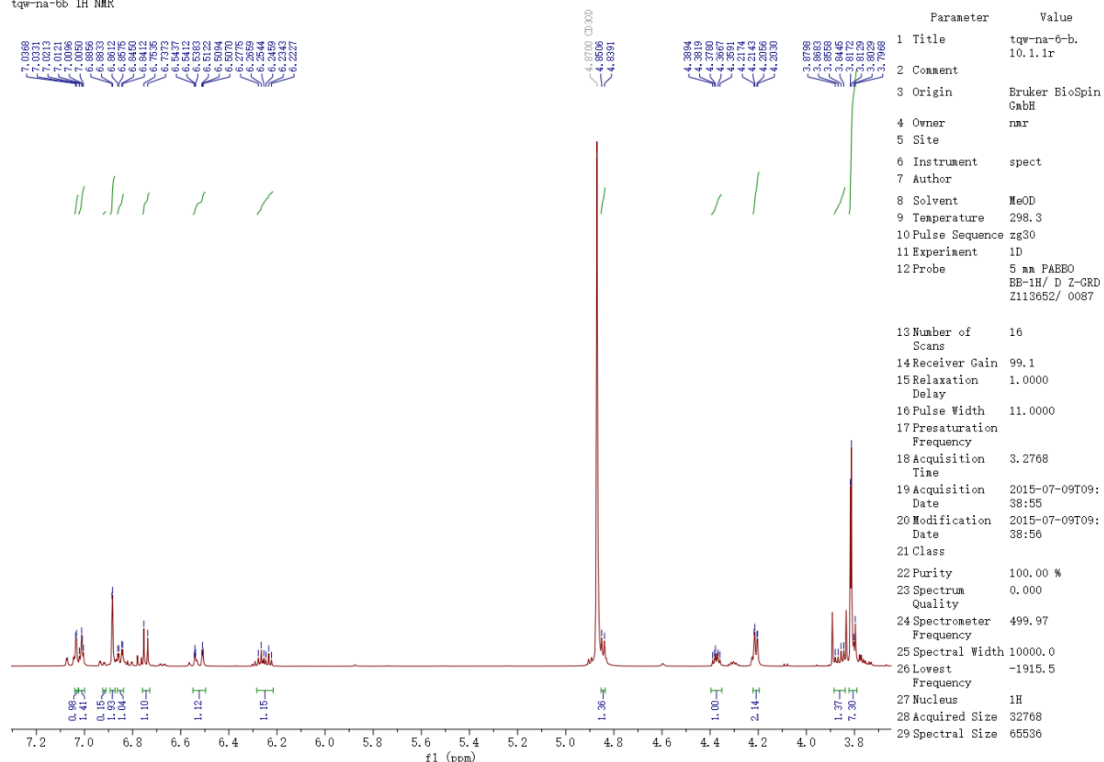


S38. ¹³C NMR spectra of dehydroconiferyl alcohol (**12**) (125 MHz, Methanol-*d*₄).

tqw-na-37 1H NMR

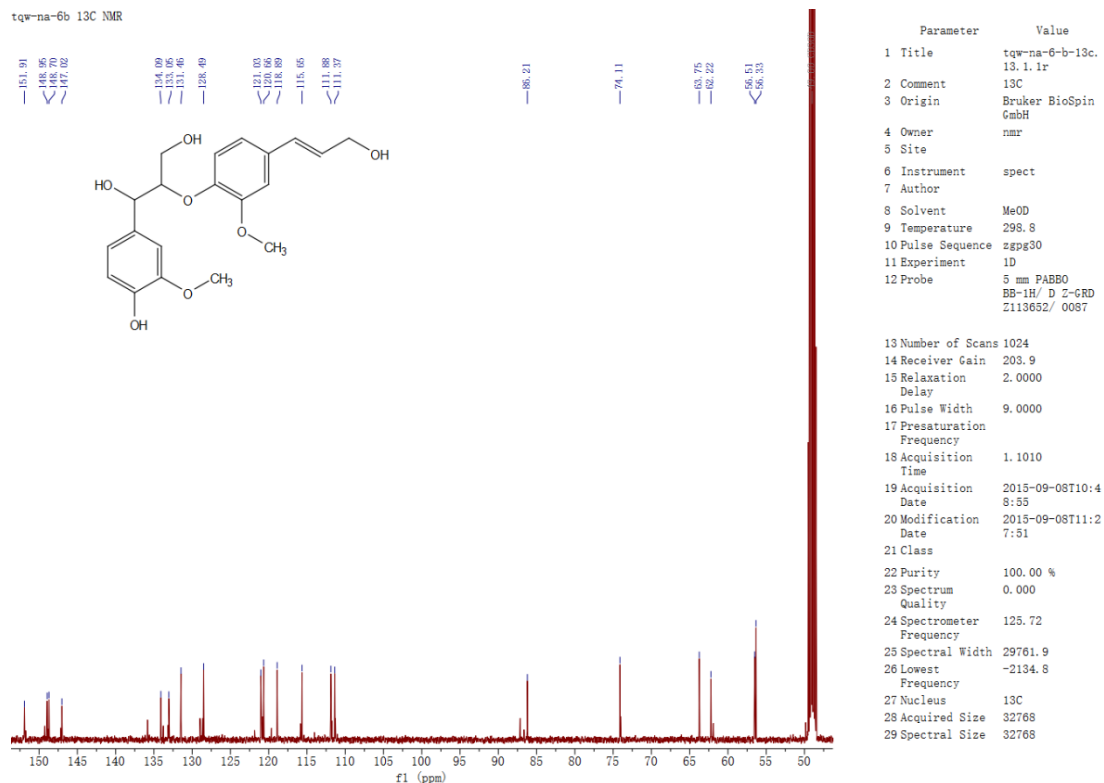


tqw-na-6b 1H NMR

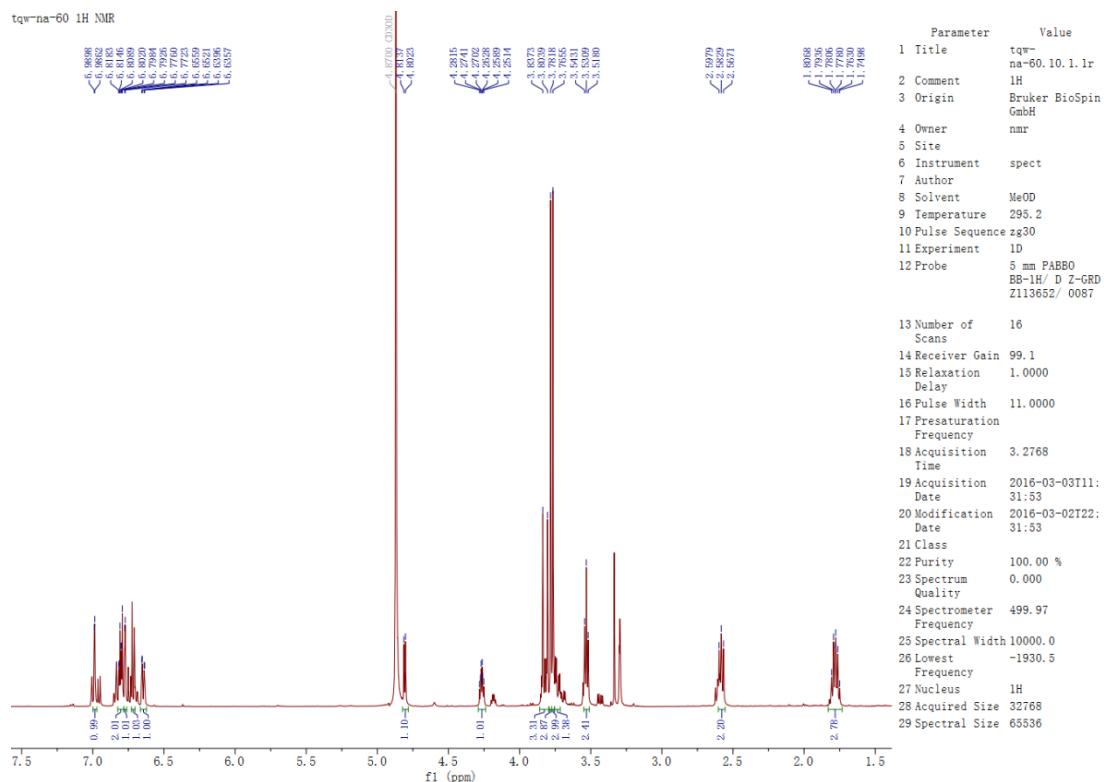


S41. ¹H-NMR spectra of *erythro*-guaiacylglycerol- β -O-4'-coniferyl ether (**14**) (500 MHz, Methanol-*d*₄).

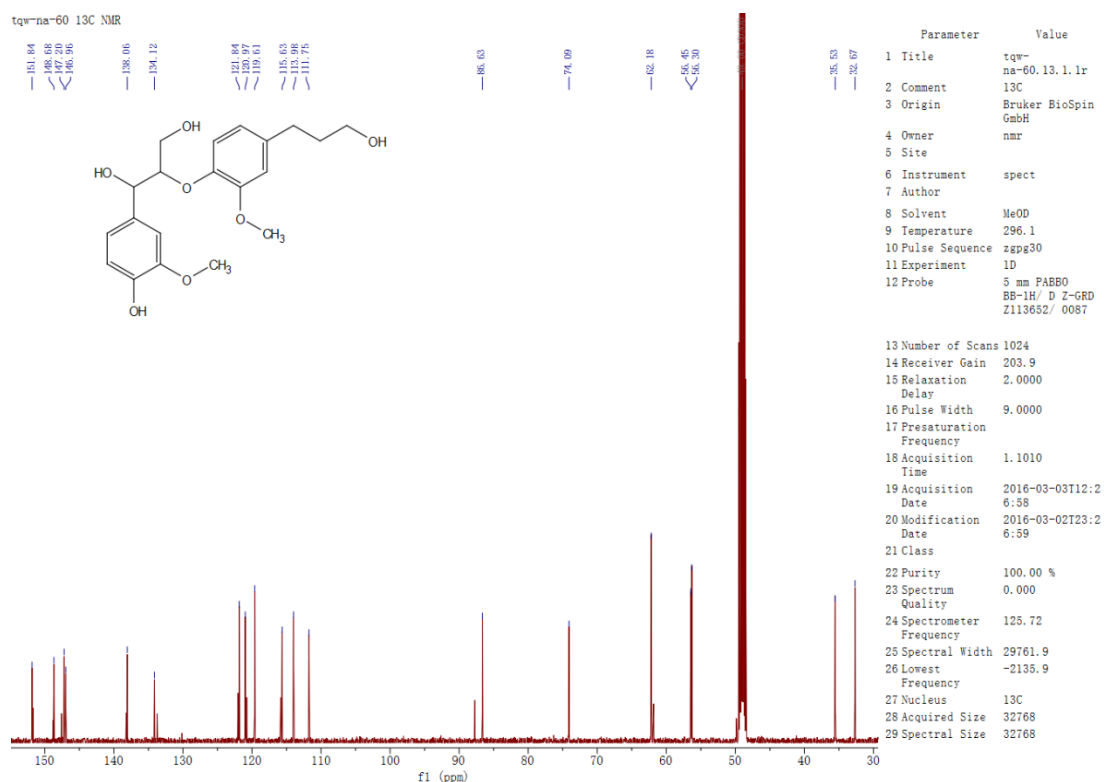
tqw-na-6b 13C NMR



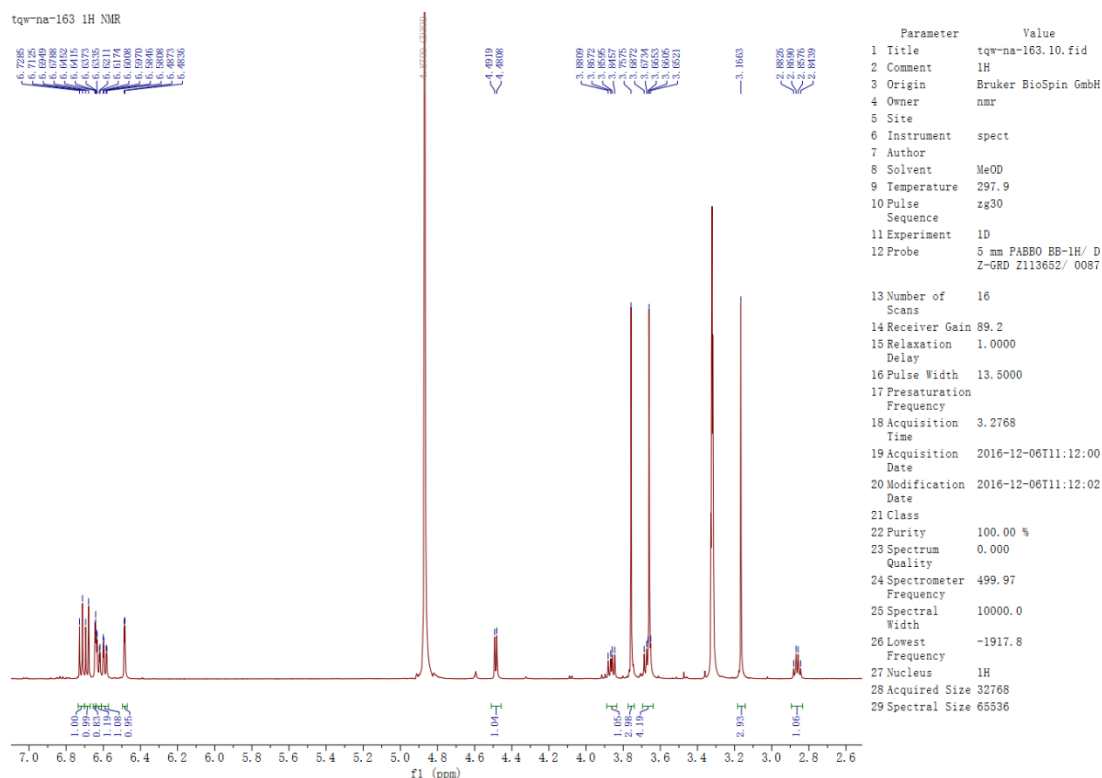
S42. ¹³C NMR spectra of *erythro*-guaiacylglycerol- β -O-4'-coniferyl ether (**14**) (125 MHz, Methanol-*d*₄).



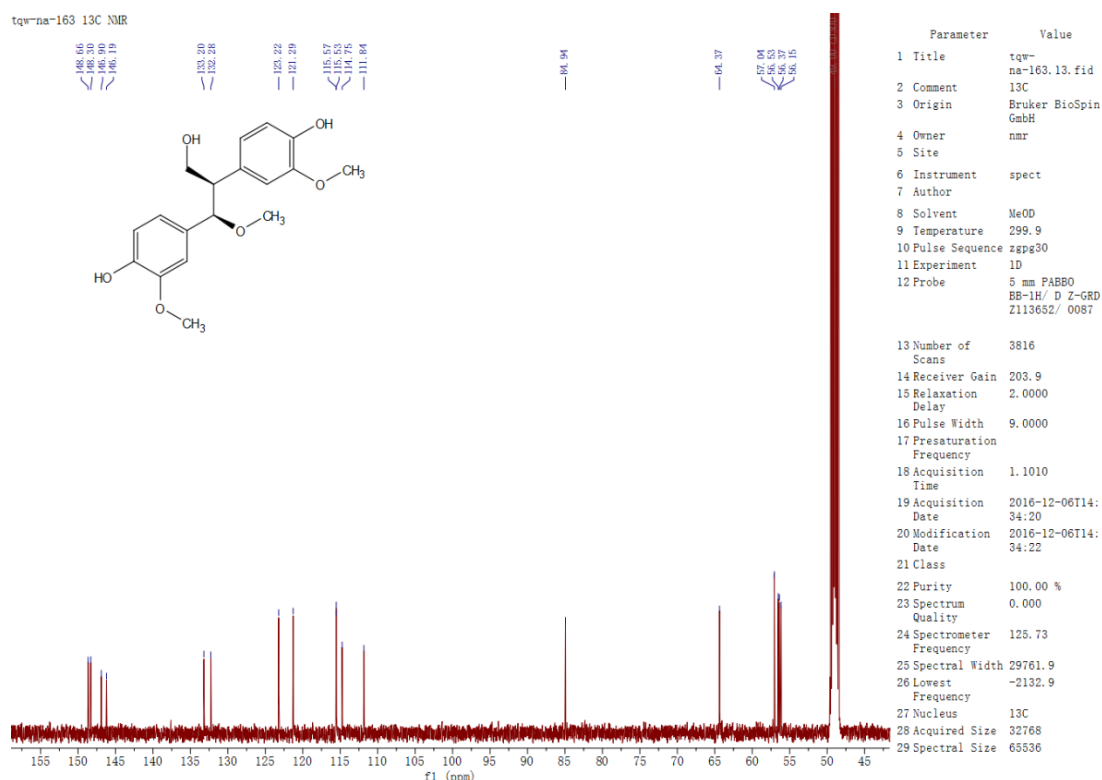
S43. ^1H -NMR spectra of 7R,8R-threo-4,7,9,9'-tetrahydroxy-3,3'-dimethoxy-8-O-4'-neolignan (**15**) (500 MHz, Methanol- d_4).



S44. ^{13}C NMR spectra of 7R,8R-threo-4,7,9,9'-tetrahydroxy-3,3'-dimethoxy-8-O-4'-neolignan (**15**) (125 MHz, Methanol- d_4).



S45. ¹H-NMR spectra of *threo*-2,3-bis-(4-hydroxy-3-methoxyphenyl)-3-methoxypropanol (**16**) (500 MHz, Methanol-*d*₄).



S46. ¹³C-NMR spectra of *threo*-2,3-bis-(4-hydroxy-3-methoxyphenyl)-3-methoxypropanol (**16**) (125 MHz, Methanol-*d*₄).