

# Dodatak

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**Roca, Sunčica**

**Supplement / Prilog**

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*Download date / Datum preuzimanja:* **2024-06-21**



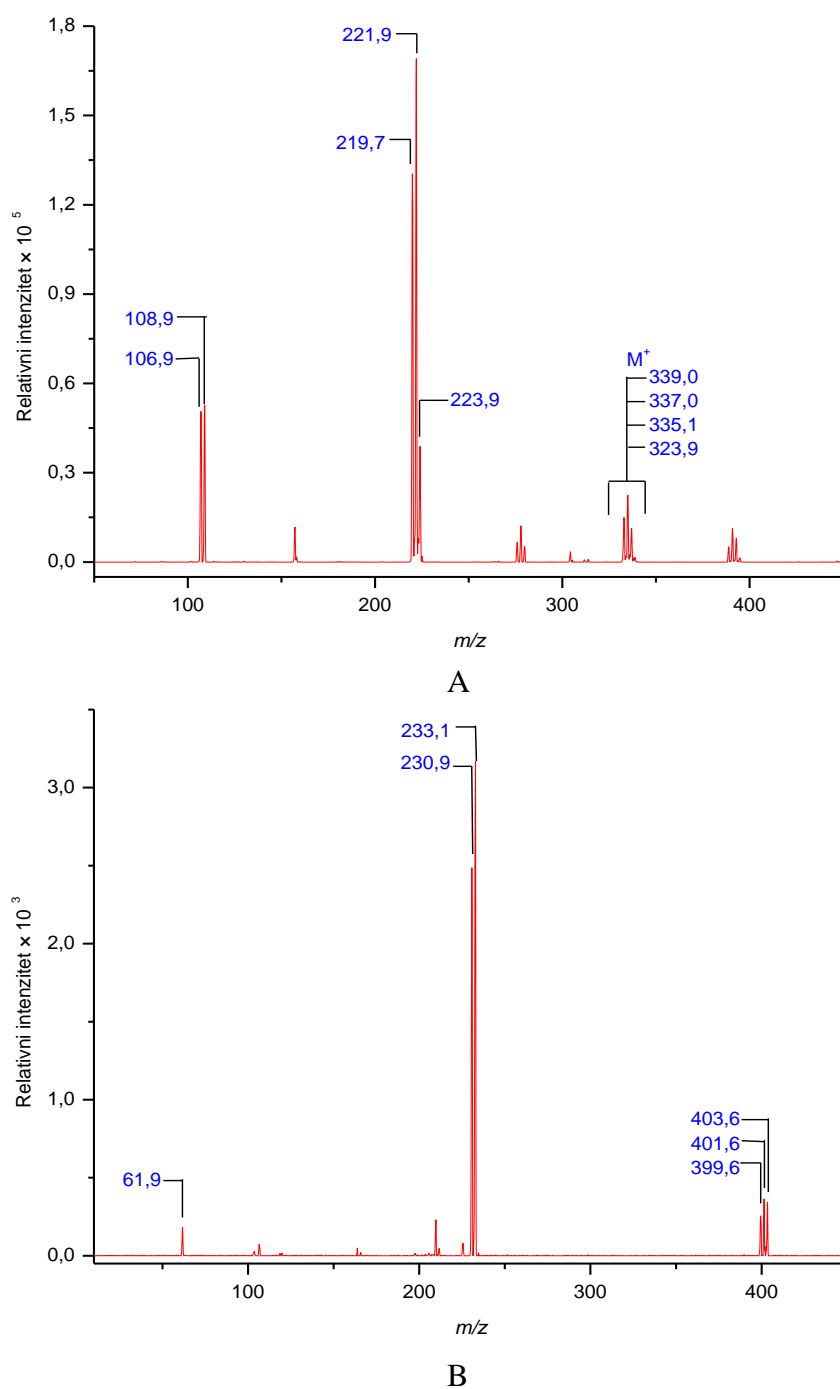
*Repository / Repozitorij:*

[Repository of the Faculty of Science - University of Zagreb](#)

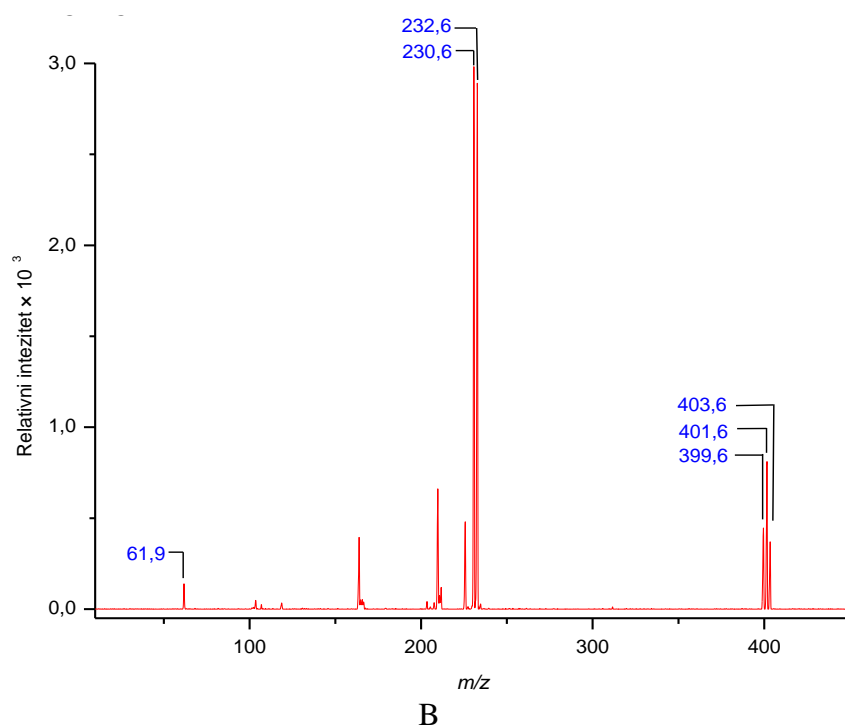
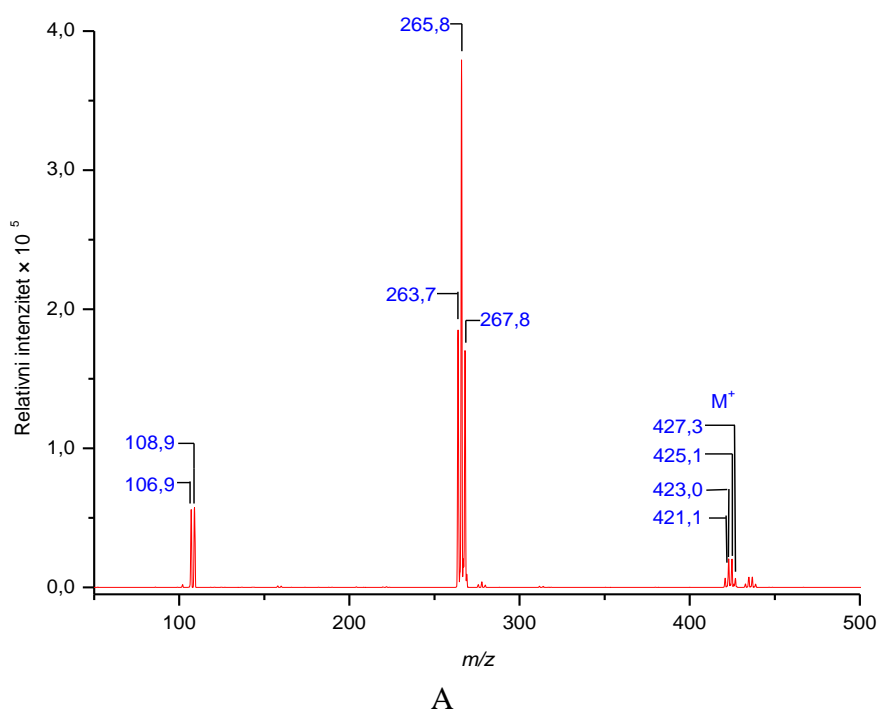


## § 8. DODATAK

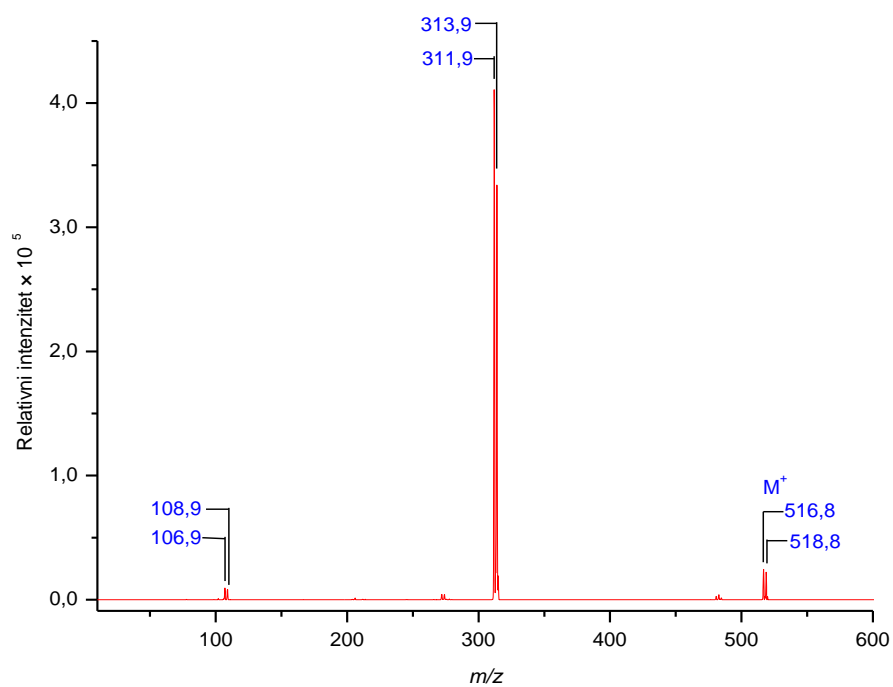
### 8.1. Spektri spektrometrije masa



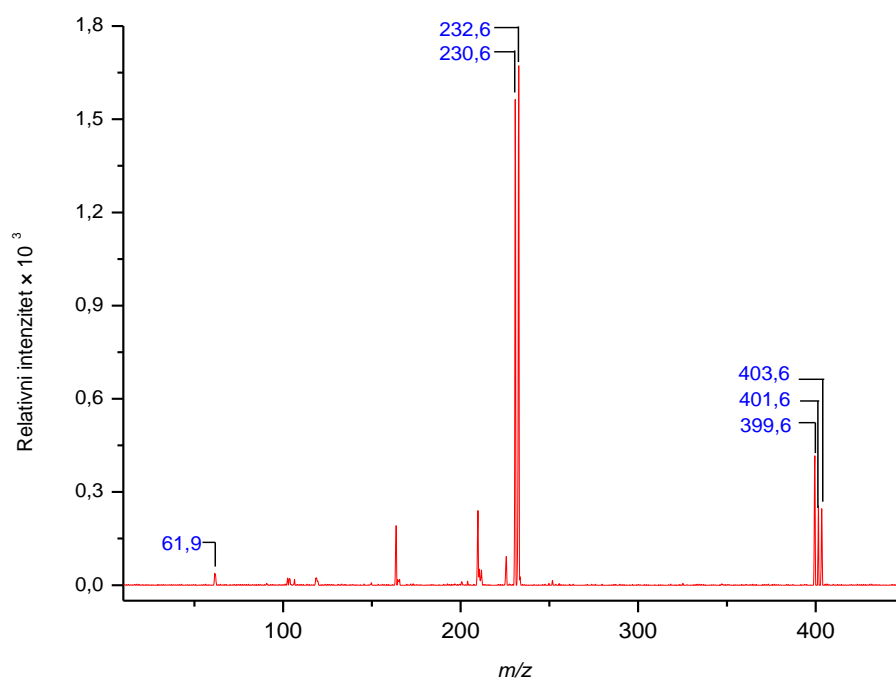
*Slika D1. A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa [Ag(NO<sub>3</sub>)(2-Clpy)<sub>2</sub>], K1.*



**Slika D2.** A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa  $[Ag(NO_3)(2-Brpy)_2]$ , K2.

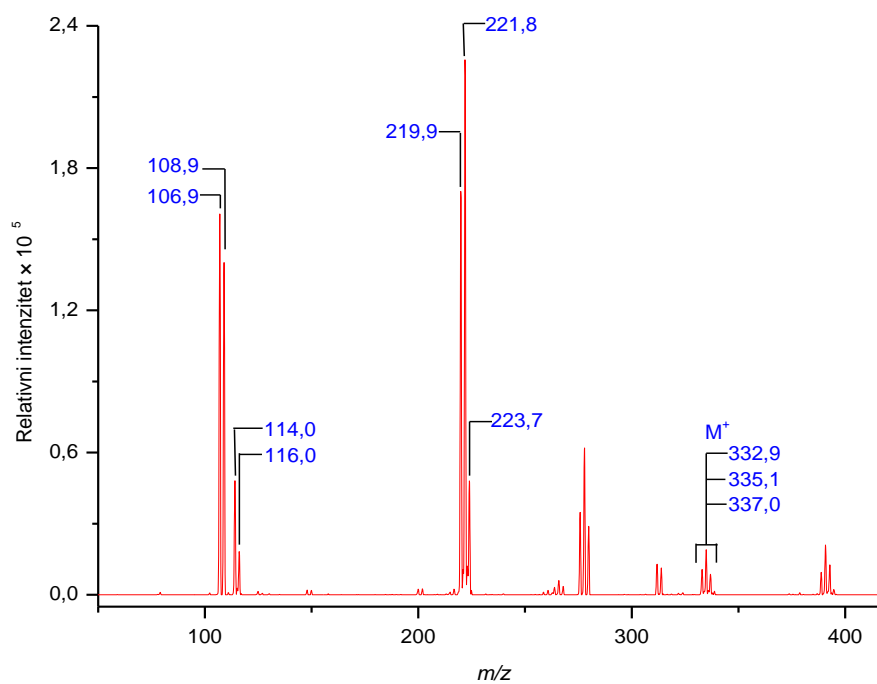


A

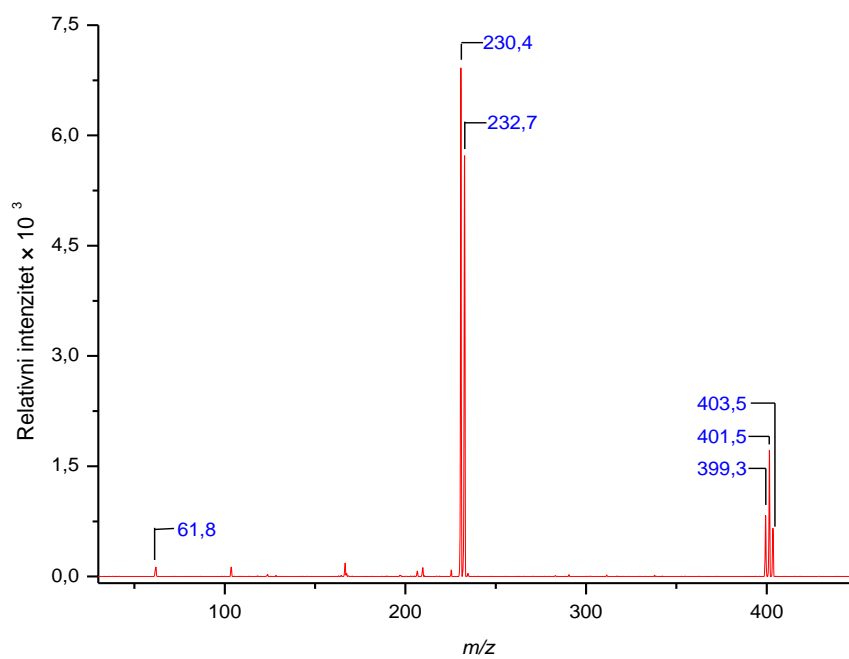


B

**Slika D3.** A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa  $[Ag(NO_3)(2-Ipy)_2]$ , K3.

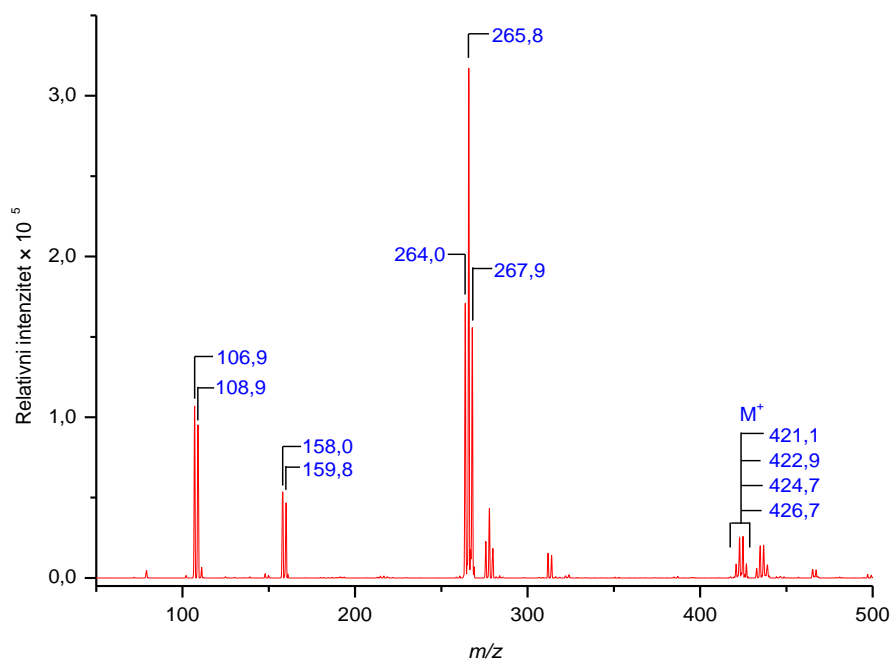


A

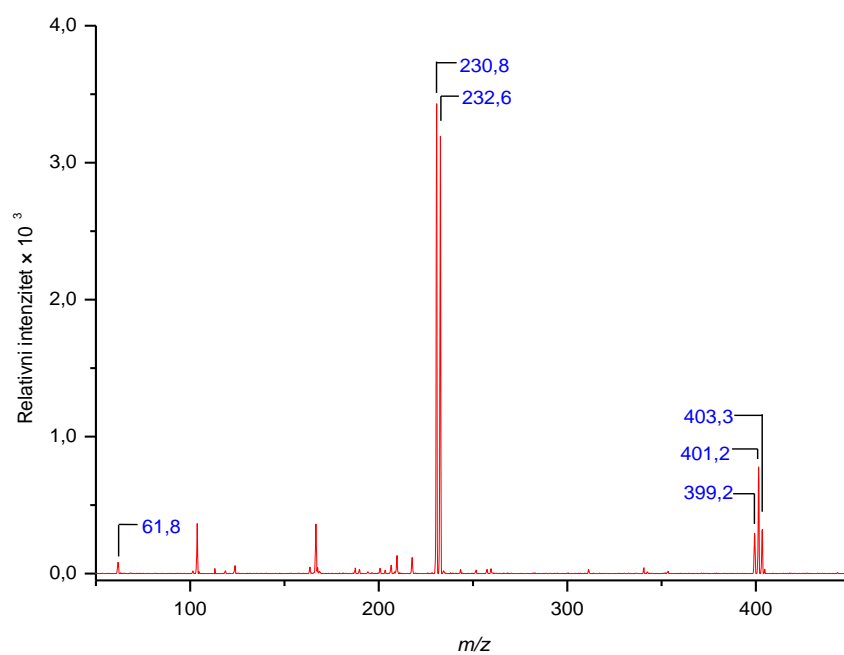


B

**Slika D4.** A)  $ESI^+$ -MS i B)  $ESI^-$ -MS spektri kompleksa  $[Ag(NO_3)(3-Clpy)_2]$ , **K4**.

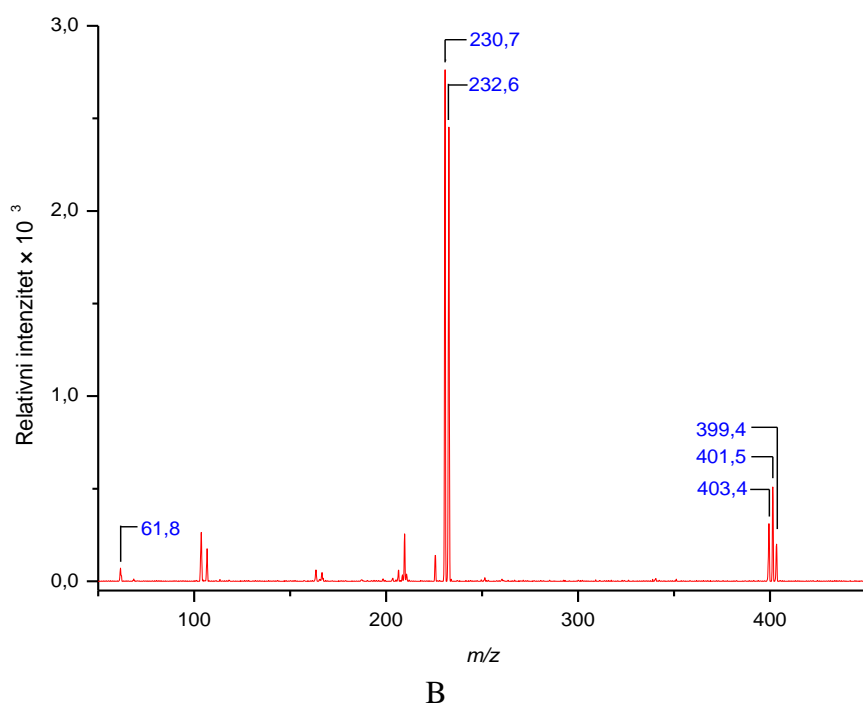
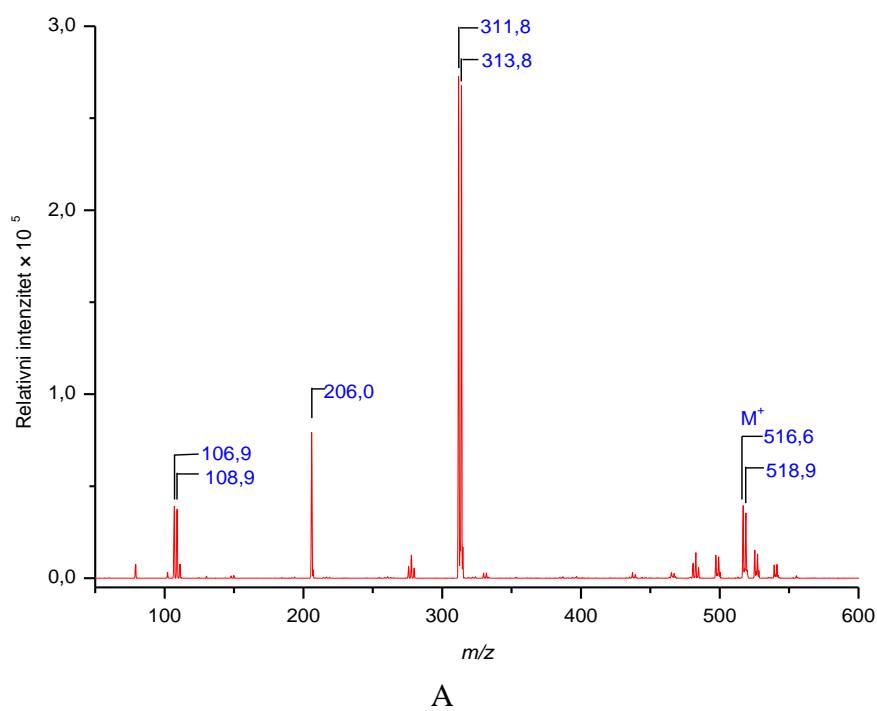


A

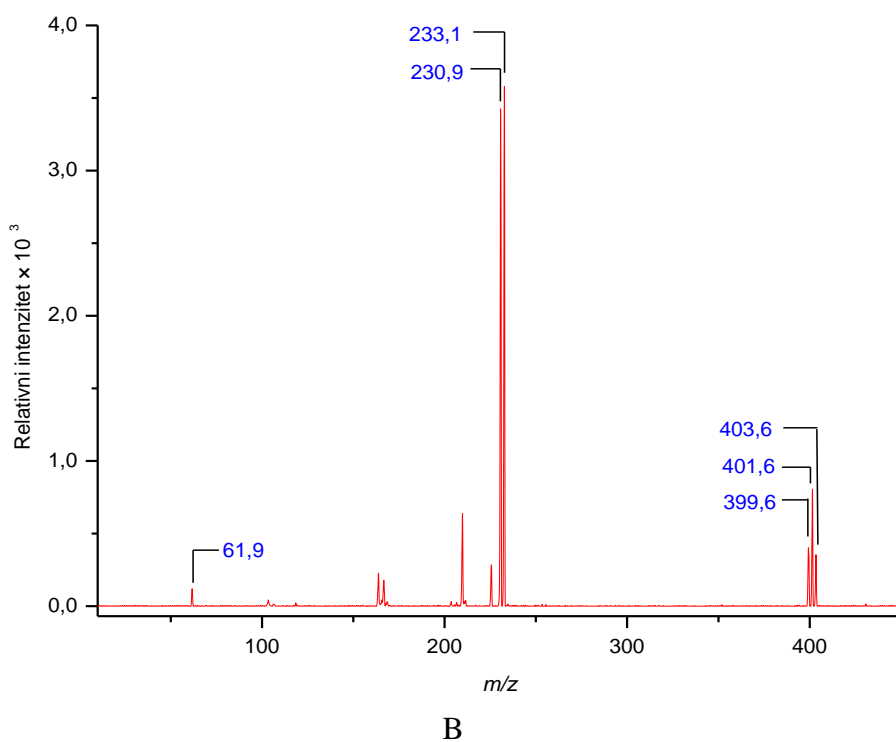
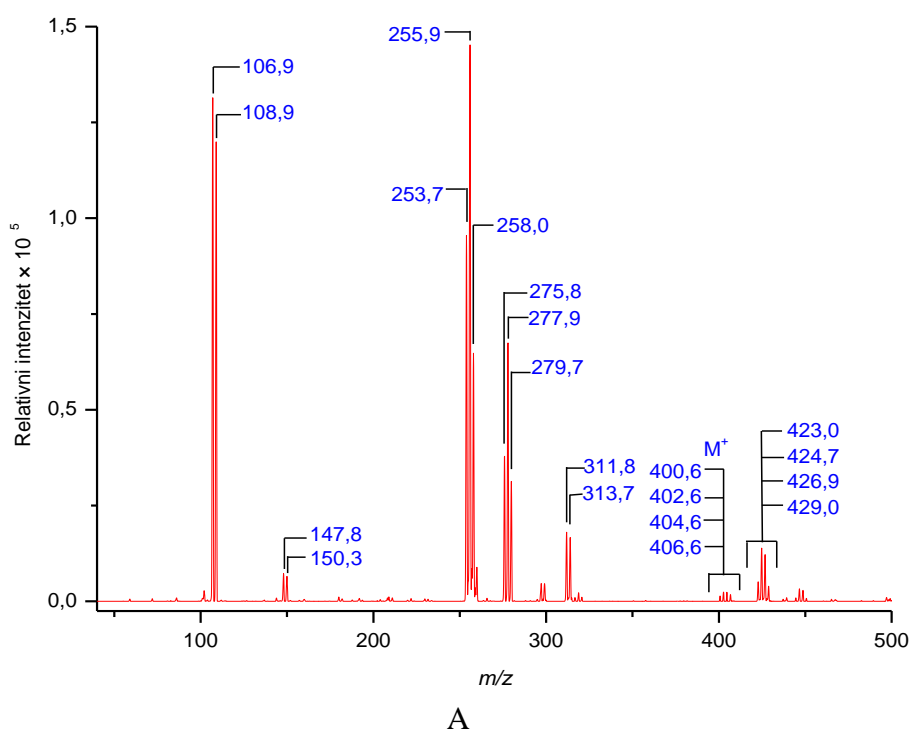


B

*Slika D5. A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa [Ag(NO<sub>3</sub>)(3-Brpy)<sub>2</sub>], K5.*

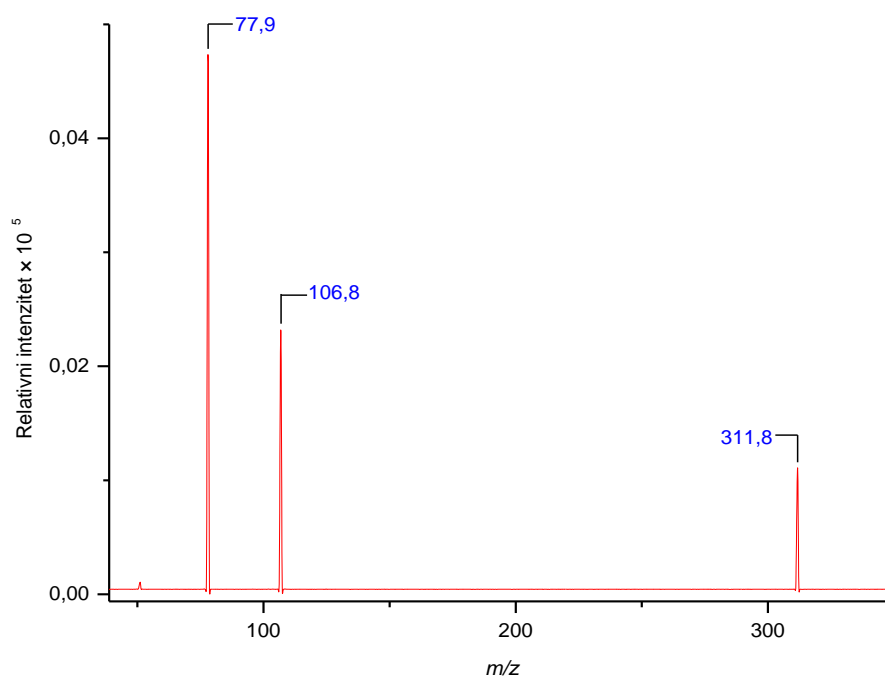


Slika D6. A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa  $[Ag(NO_3)(3-Ipy)_2]^+$ , K6.

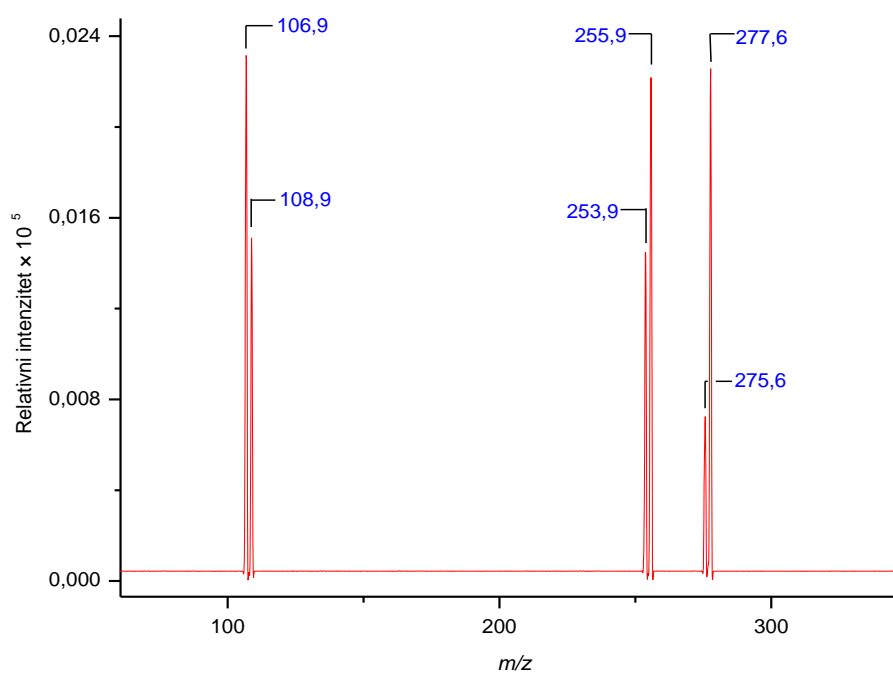


*Slika D7.* A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa  $[Ag(NO_3)(2,5-Cl_2py)_2]$ , **K7**.



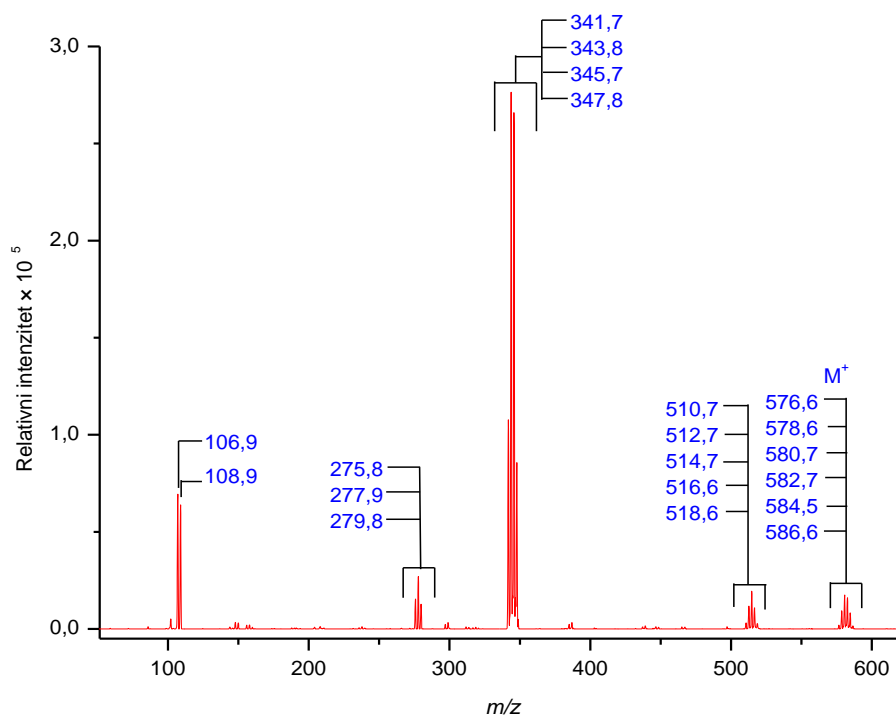


A

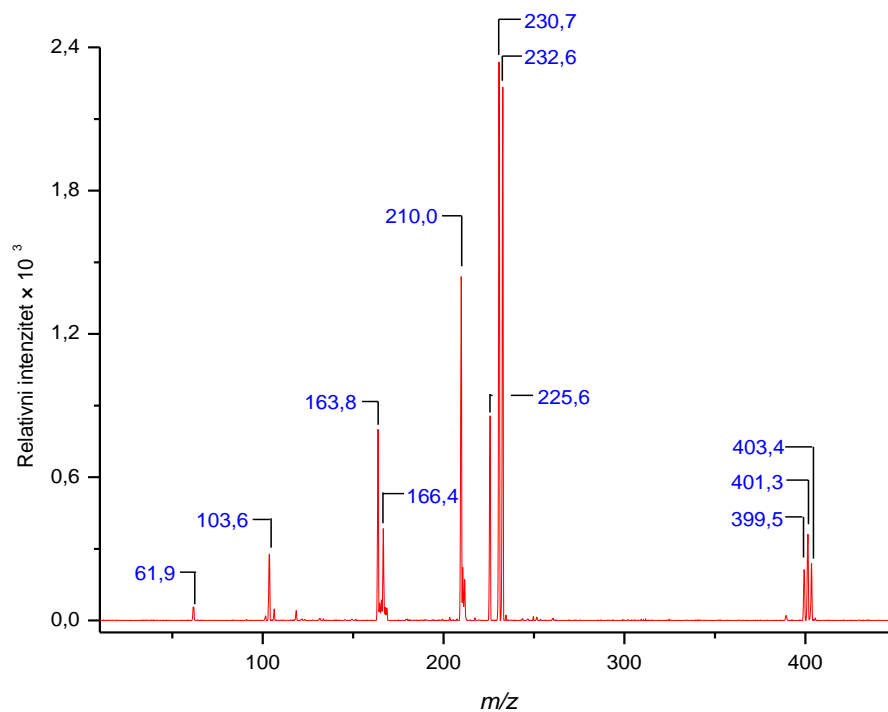


B

**Slika D8.** ESI<sup>+</sup>-MS/MS spektri dobiveni fragmentacijom iona A) m/z 311,8 i B) m/z 424,7 kod kompleksa [Ag(NO<sub>3</sub>)(2,5-Cl<sub>2</sub>py)<sub>2</sub>], **K7**.

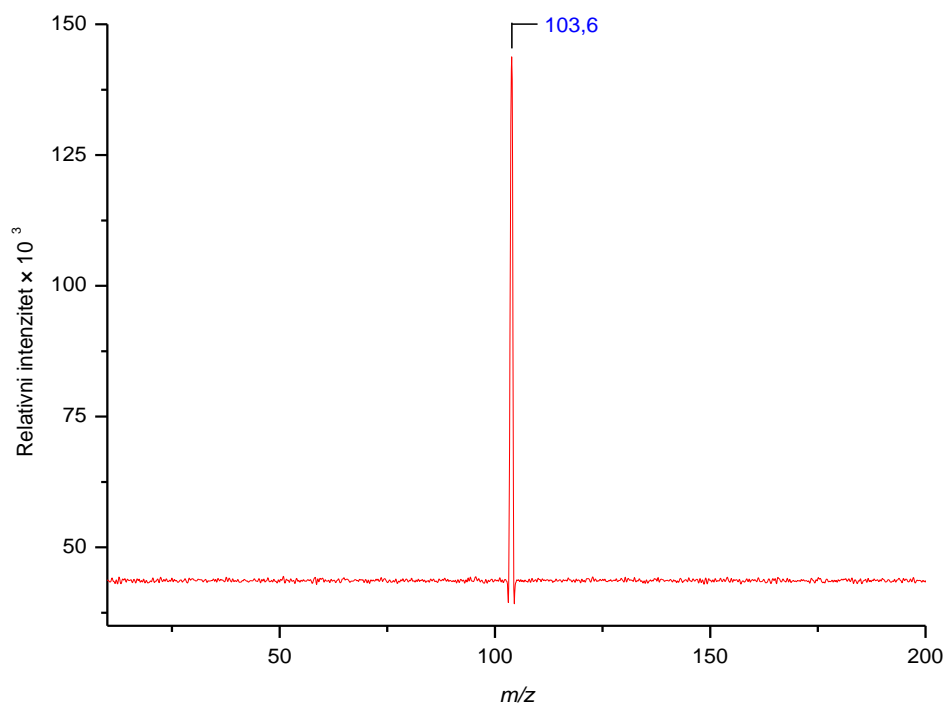


A

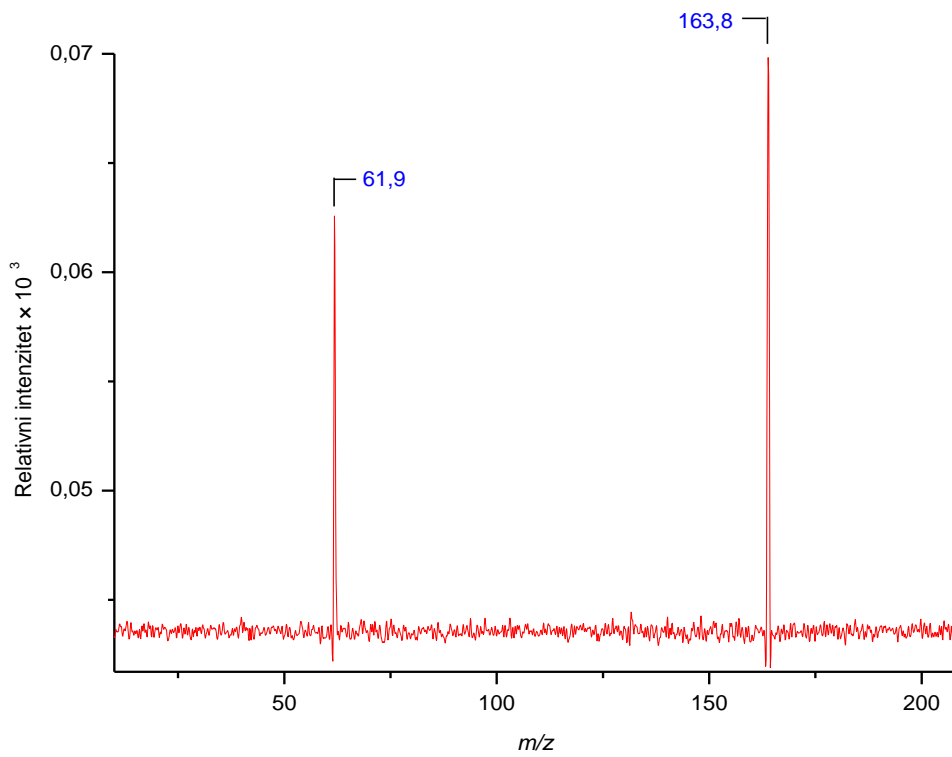


B

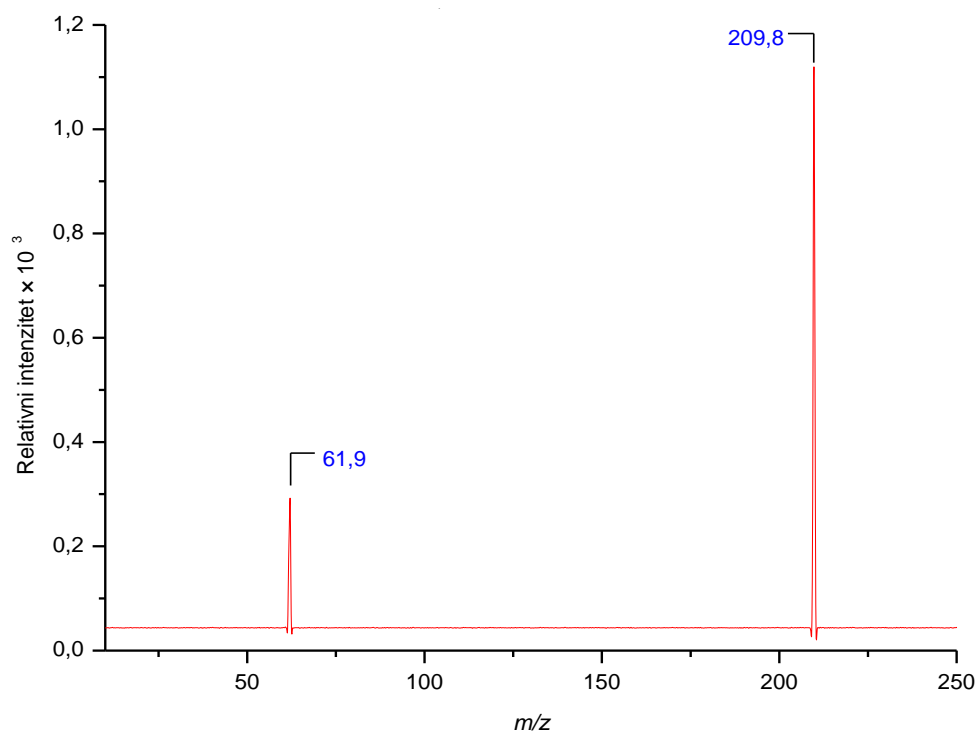
*Slika D9.* A)  $ESI^+$ -MS i B)  $ESI^-$ -MS spektri kompleksa  $[Ag(NO_3)(2,5-Br_2py)_2]$ , K8.



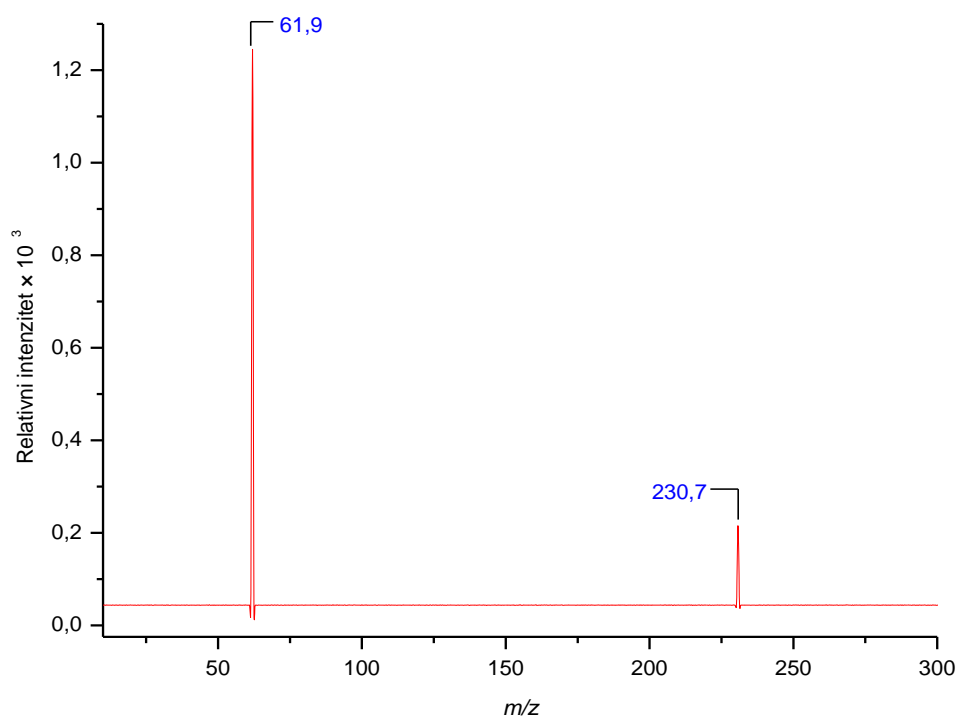
A



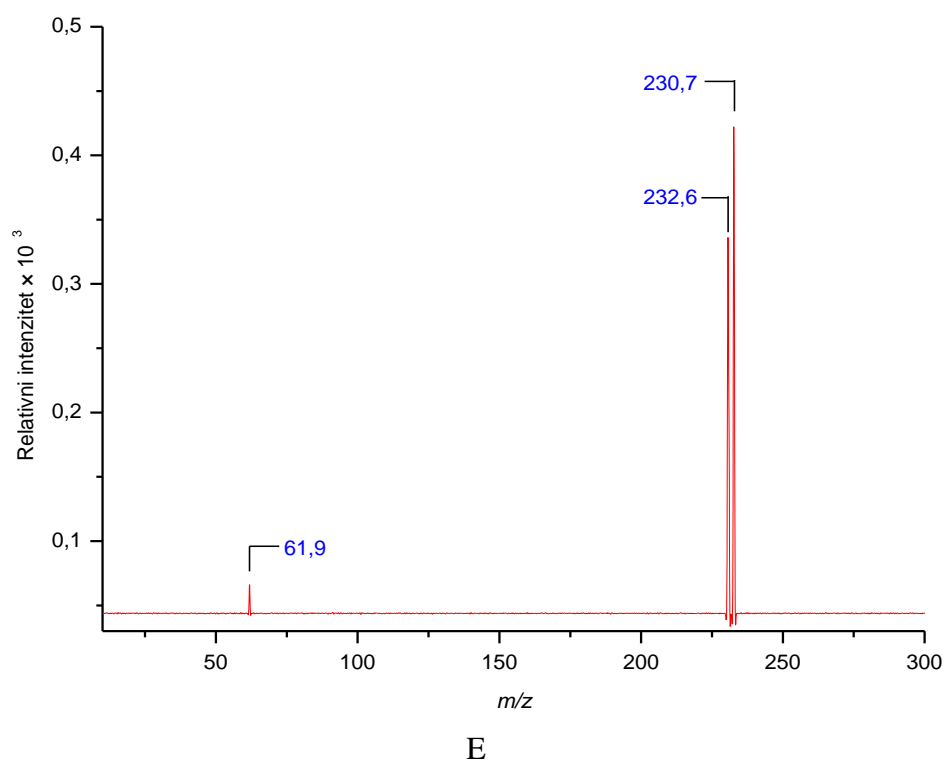
B



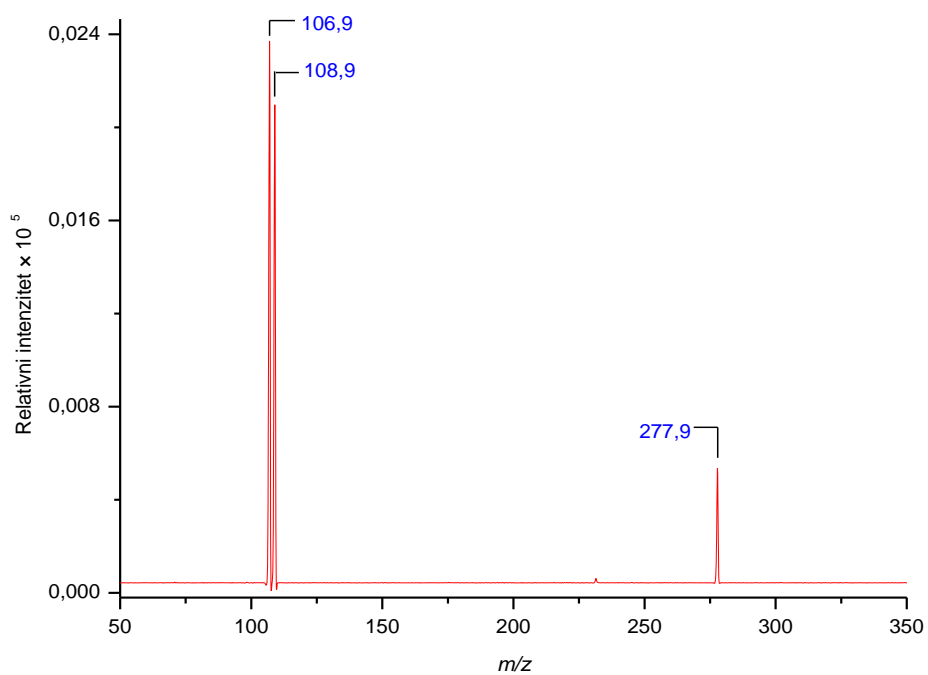
C



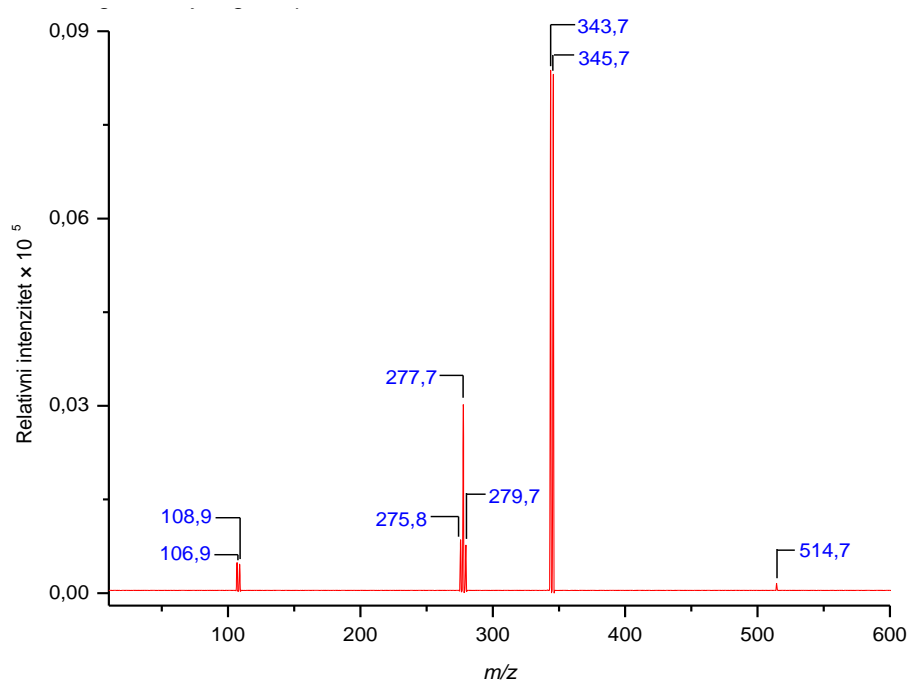
D



**Slika D10.** ESI-MS/MS spektri dobiveni fragmentacijom iona A)  $m/z$  103,6, B)  $m/z$  163,8, C)  $m/z$  209,8, D)  $m/z$  230,7 i E)  $m/z$  401,3 kod kompleksa  $[Ag(NO_3)(2,5-Br_2py)_2]$ , **K8**.

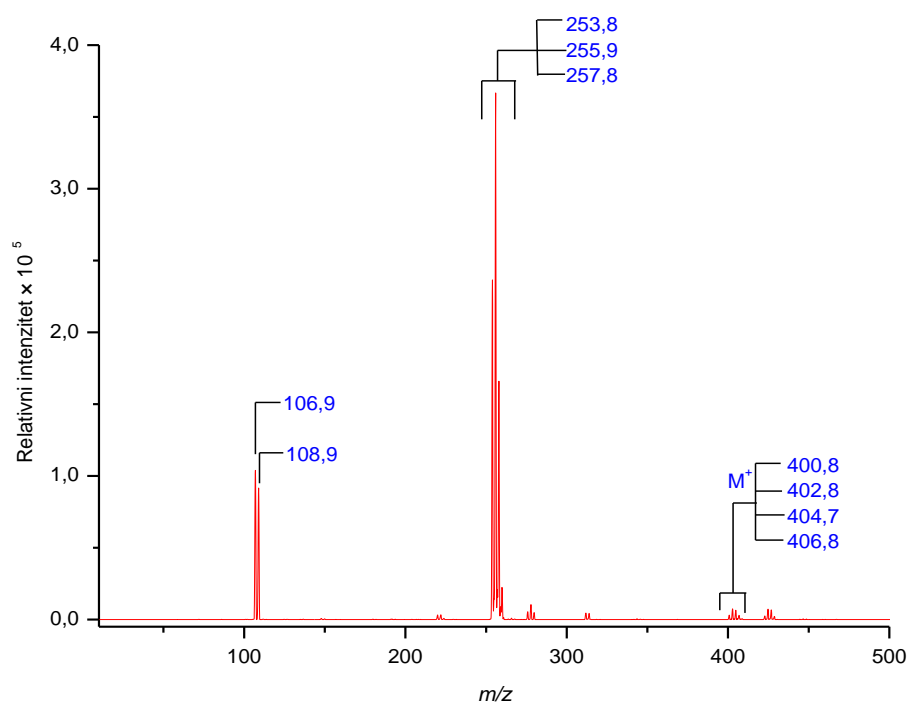


A

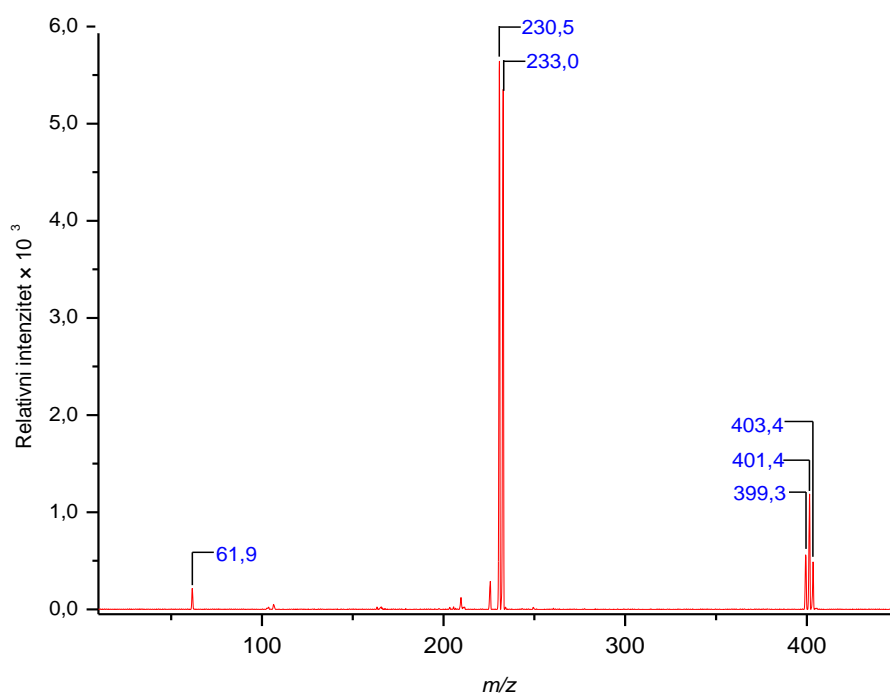


B

**Slika D11.** ESI<sup>+</sup>-MS/MS spektri dobiveni fragmentacijom iona A) m/z 277,9 i B) m/z 514,7 kod kompleksa [Ag(NO<sub>3</sub>)(2,5-Br<sub>2</sub>py)<sub>2</sub>], **K8**.

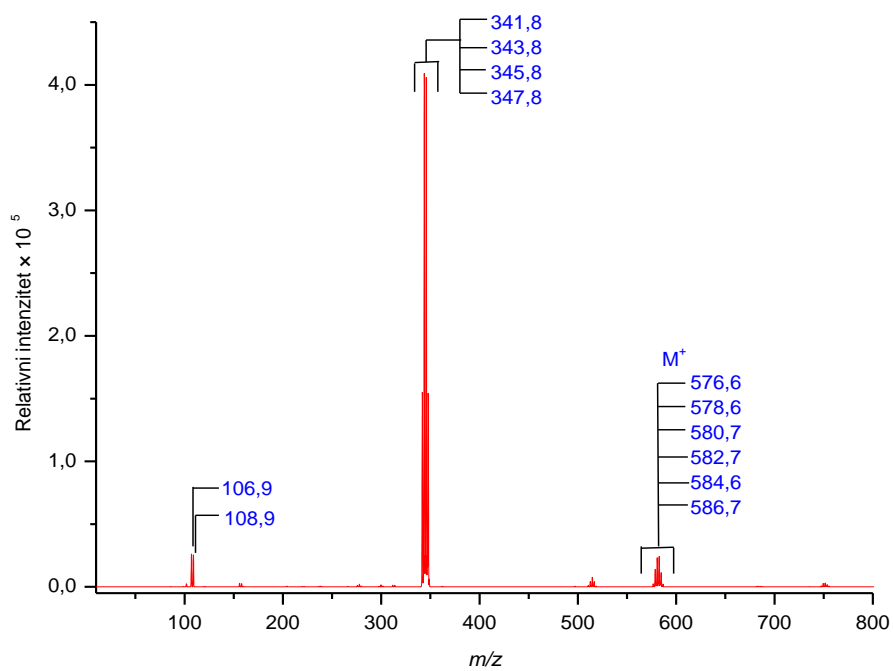


A

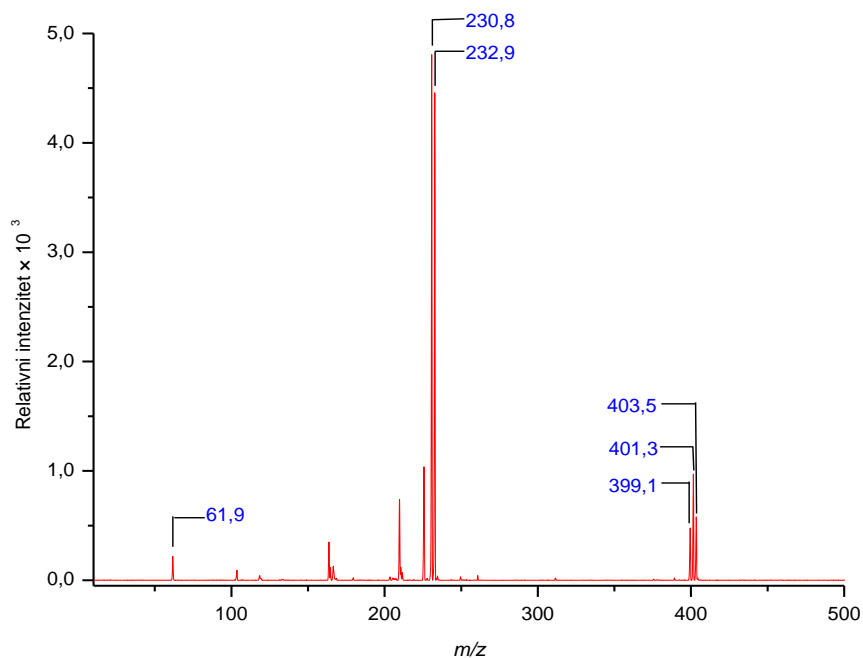


B

**Slika D12.** A) ESI<sup>+</sup>-MS i B) ESI<sup>-</sup>-MS spektri kompleksa  $[Ag(NO_3)(2,6-Cl_2py)_2]$ , **K9**.



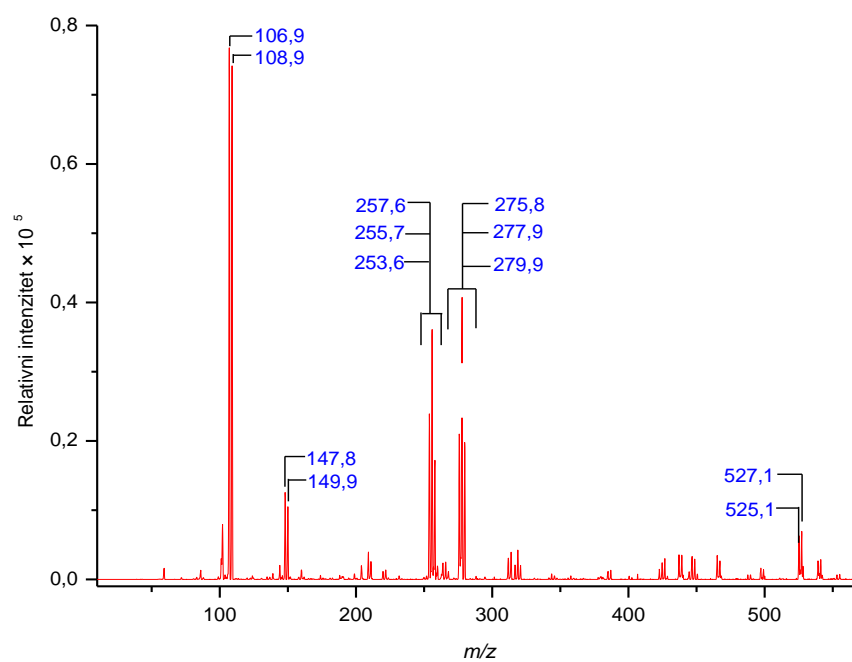
A



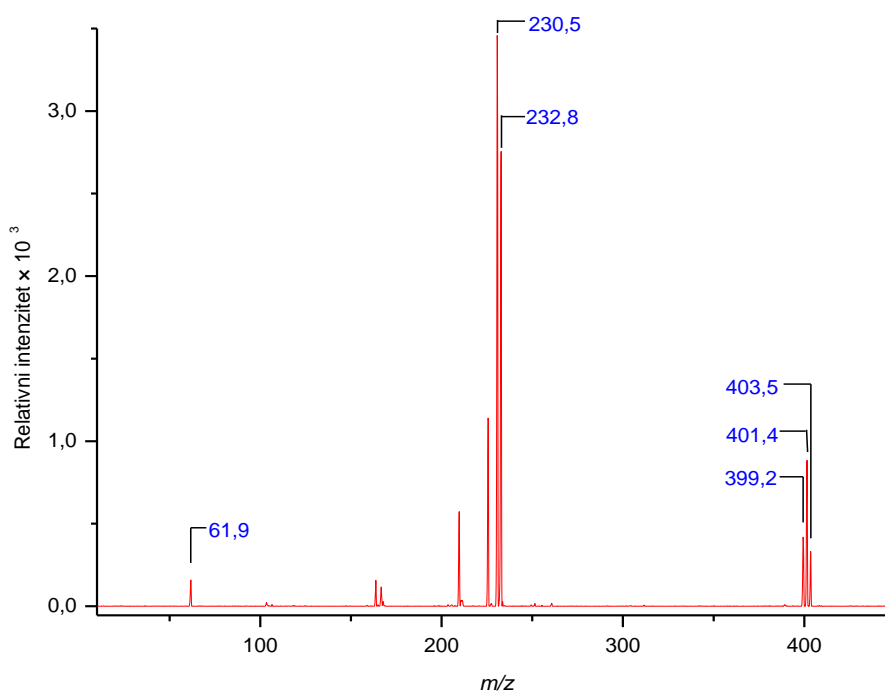
B

**Slika D13.** A)  $ESI^+$ -MS i B)  $ESI^-$ -MS spektri kompleksa  $[Ag(NO_3)(2,6-Br_2py)_2]$ , K10.



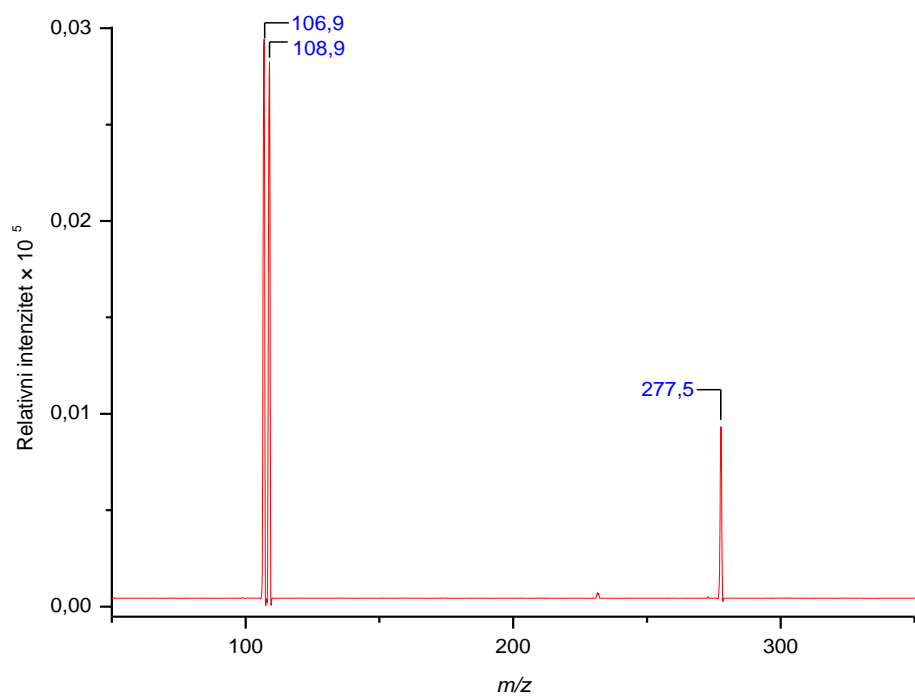


A

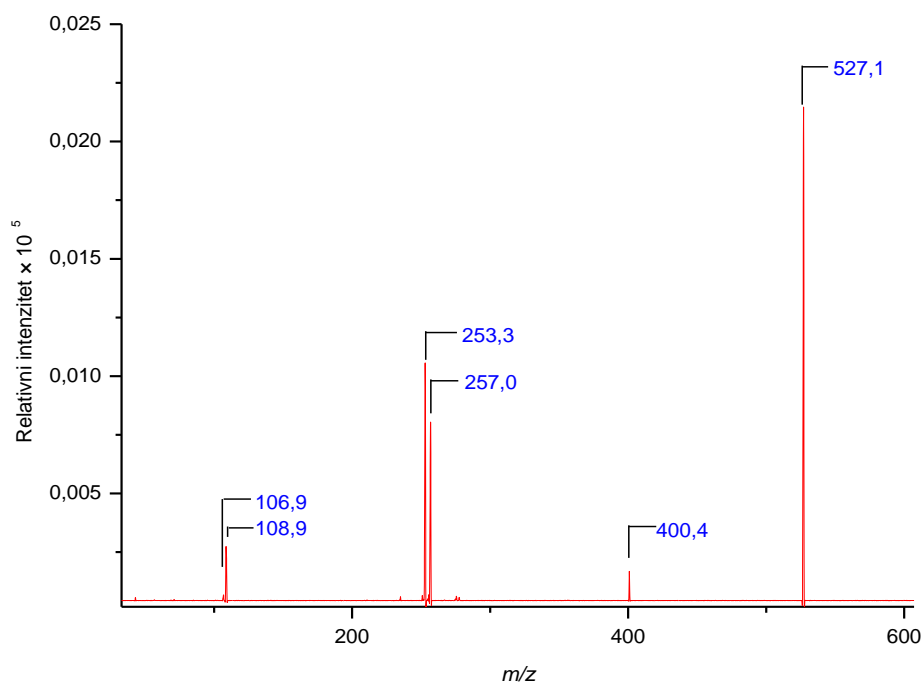


B

**Slika D14.** A)  $ESI^+$ -MS i B)  $ESI^-$ -MS spektri kompleksa  $[Ag(NO_3)(3,5-Cl_2py)_2]$ , **K11**. Molekulski ion u  $ESI^+$ -MS spektru nije pronađen.

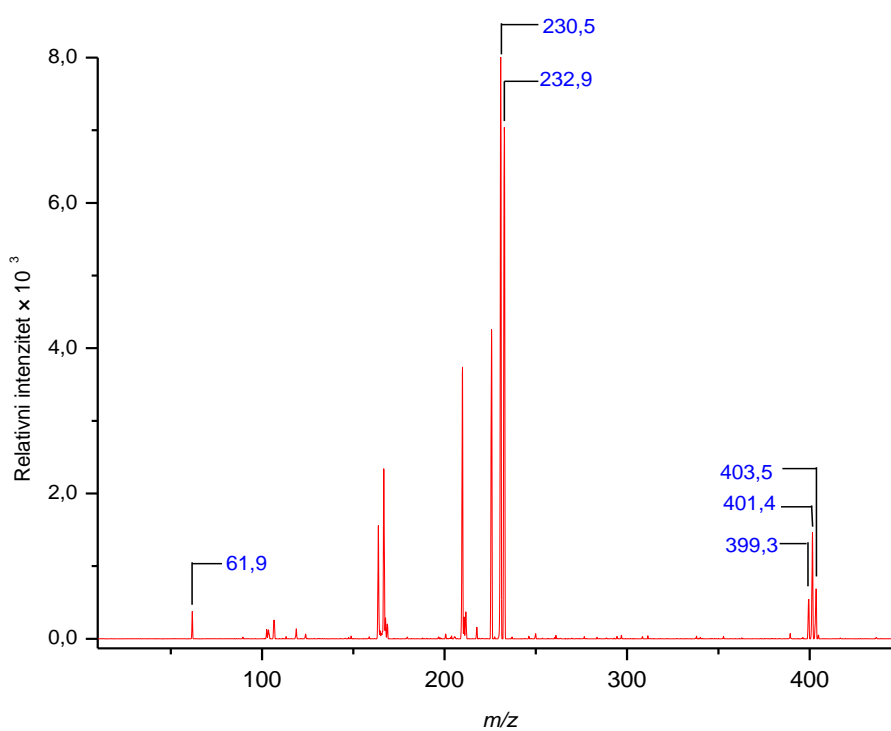
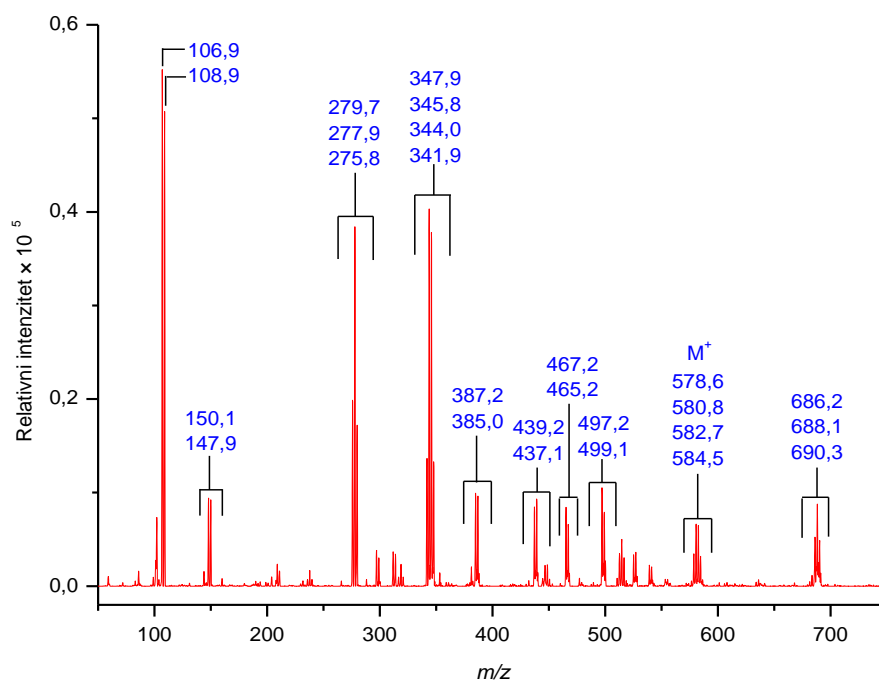


A

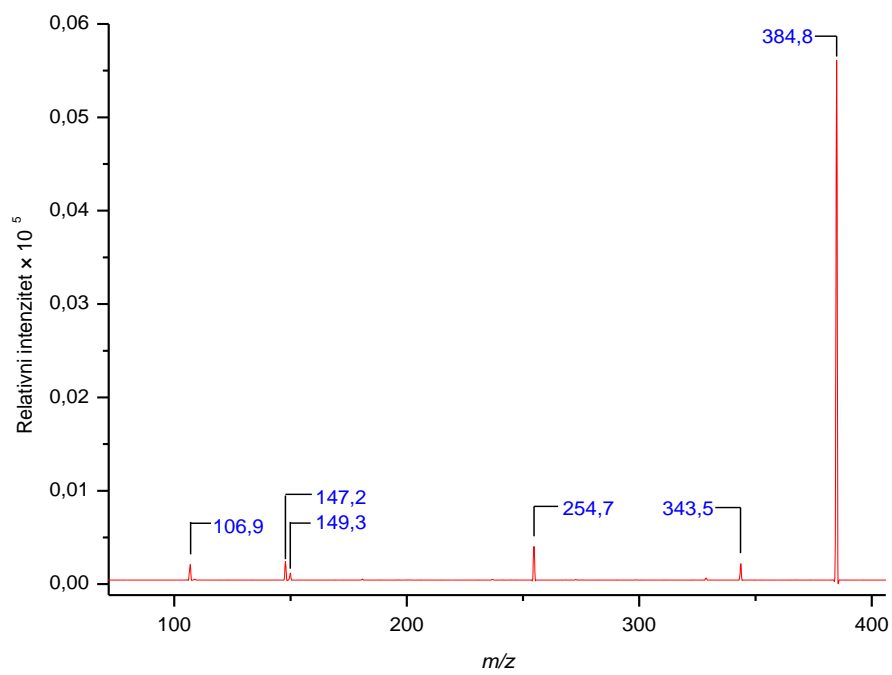


B

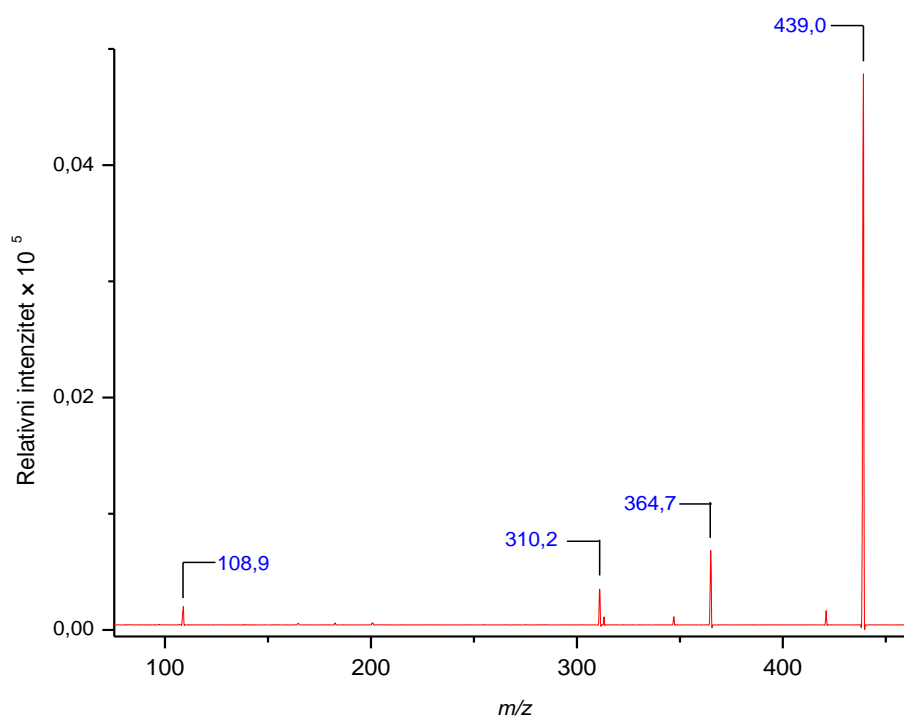
**Slika D15.** ESI<sup>+</sup>-MS/MS spektri dobiveni fragmentacijom iona A) m/z 277,5 i B) m/z 527,1 kod kompleksa [Ag(NO<sub>3</sub>)(3,5-Cl<sub>2</sub>py)<sub>2</sub>], **K11**.



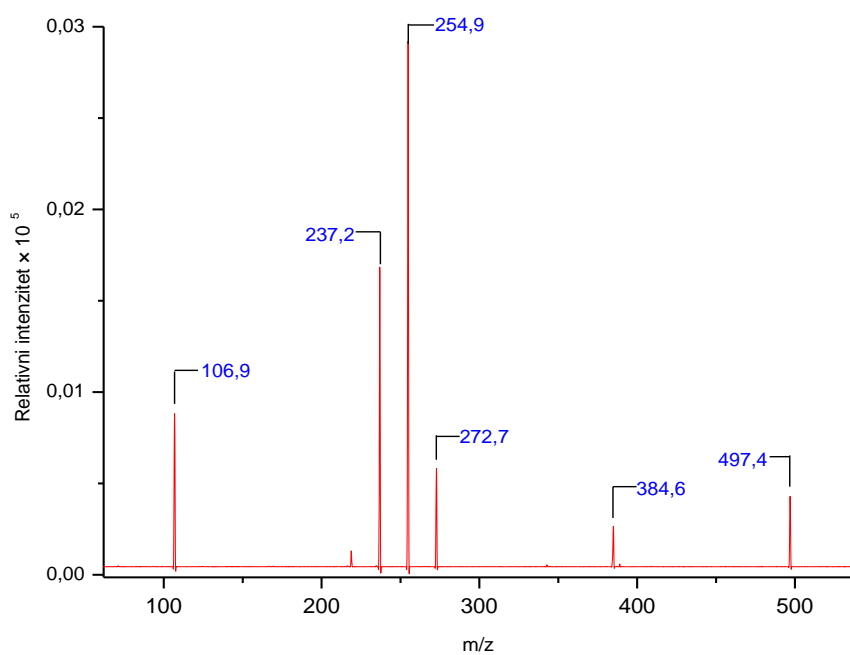
Slika D16. A)  $ESI^+$ -MS i B)  $ESI^-$ -MS spektri kompleksa  $[Ag(NO_3)(3,5-Br_2py)_2]$ , K12.



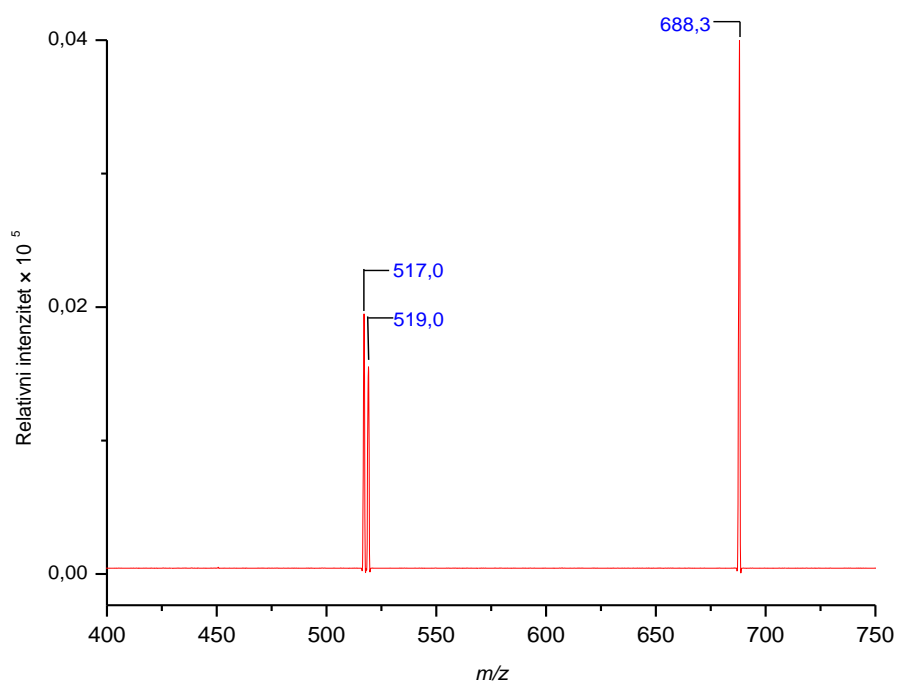
A



B



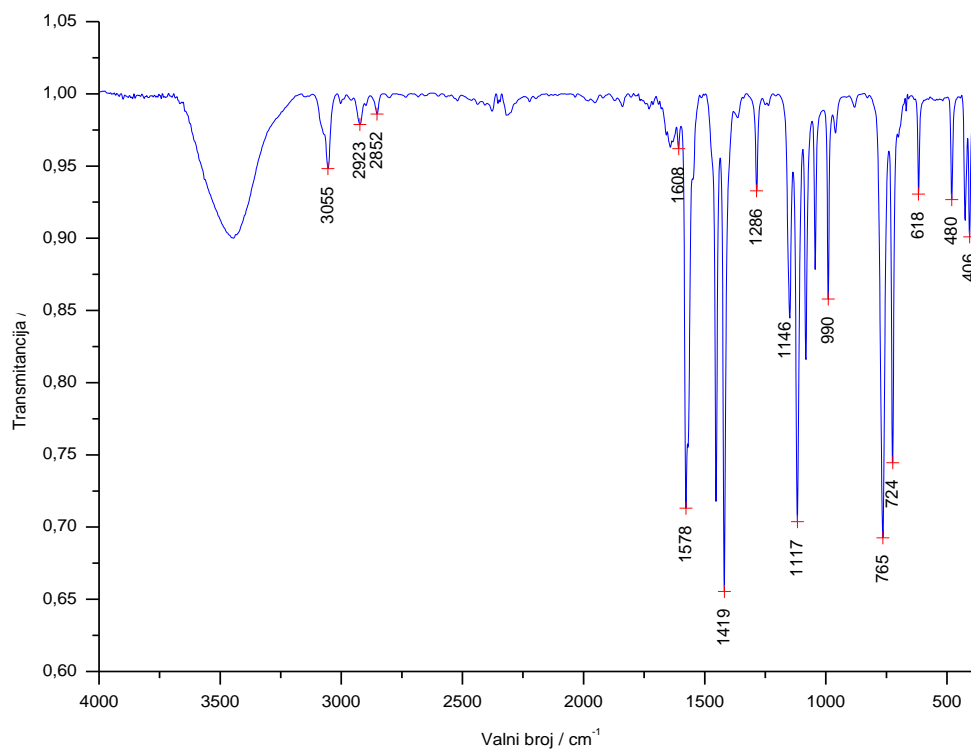
C



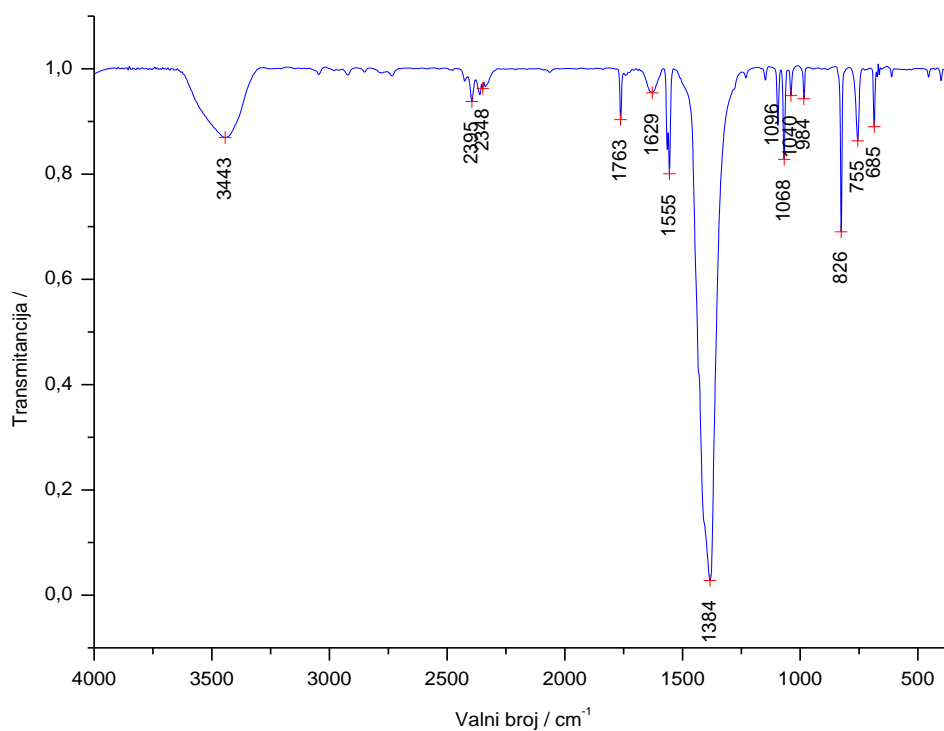
D

**Slika D17.** ESI<sup>+</sup>-MS/MS spektri dobiveni fragmentacijom iona A)  $m/z$  385,0, B)  $m/z$  439,0, C)  $m/z$  497,4 i D)  $m/z$  688,3 kod kompleksa  $[Ag(NO_3)(3,5-Br_2py)_2]$ , **K12**.

## 8.2. Infracrveni spektri

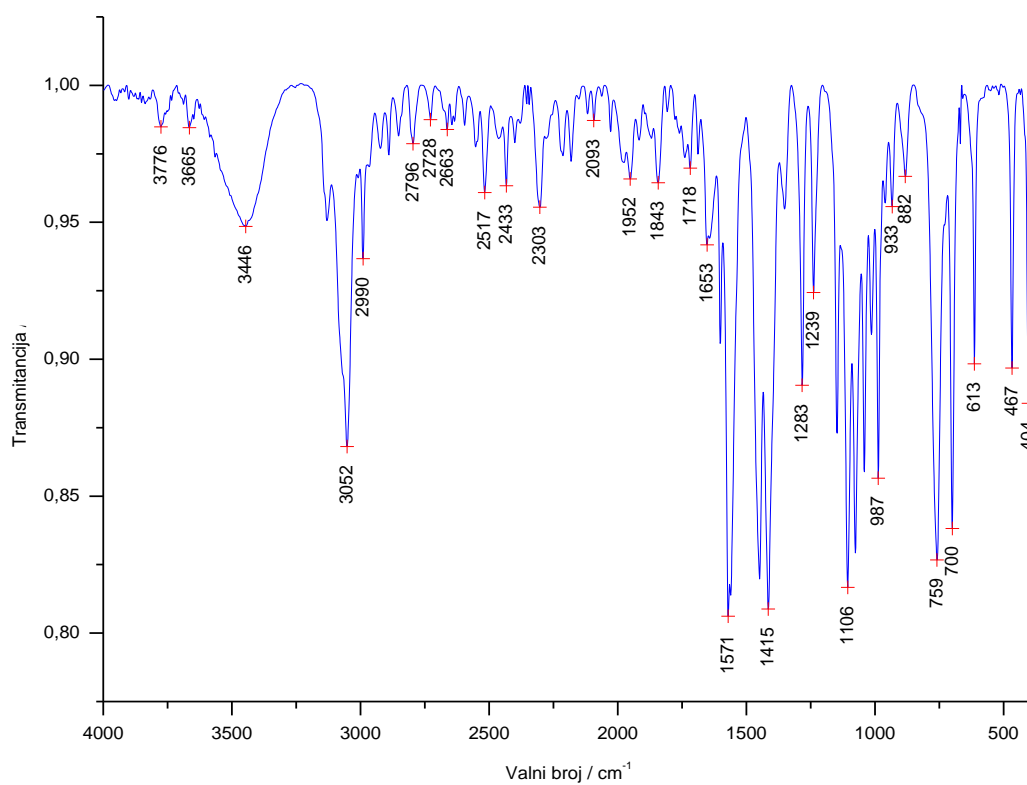


A

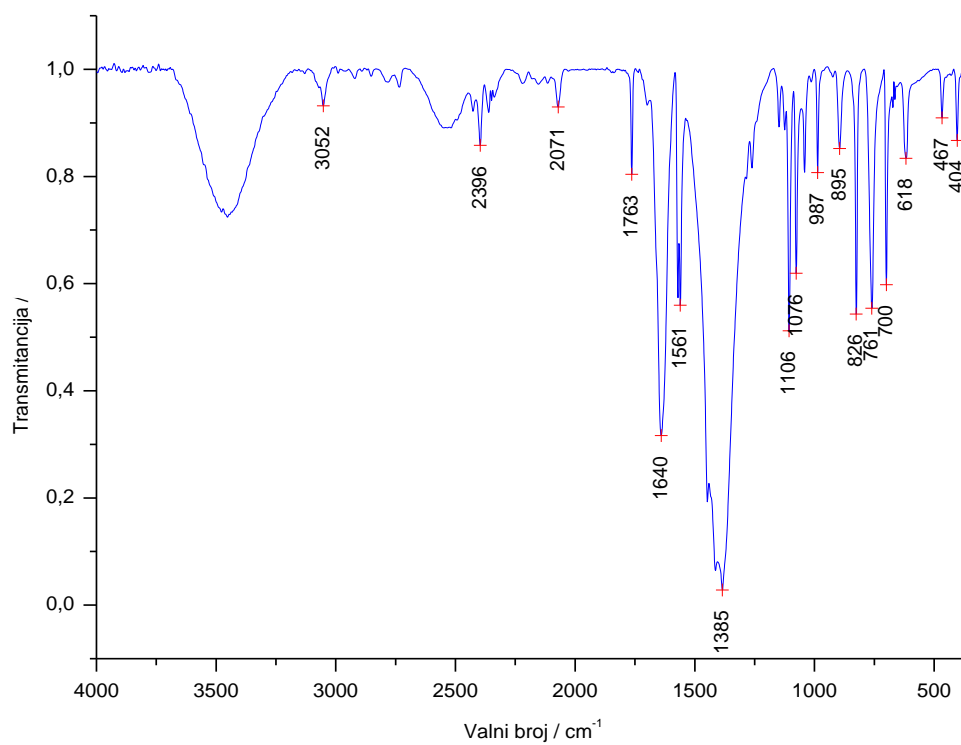


B

*Slika D18. Spektri IR A) 2-Clpy (LI) i B) [Ag(NO<sub>3</sub>)(2-Clpy)<sub>2</sub>] (KI).*

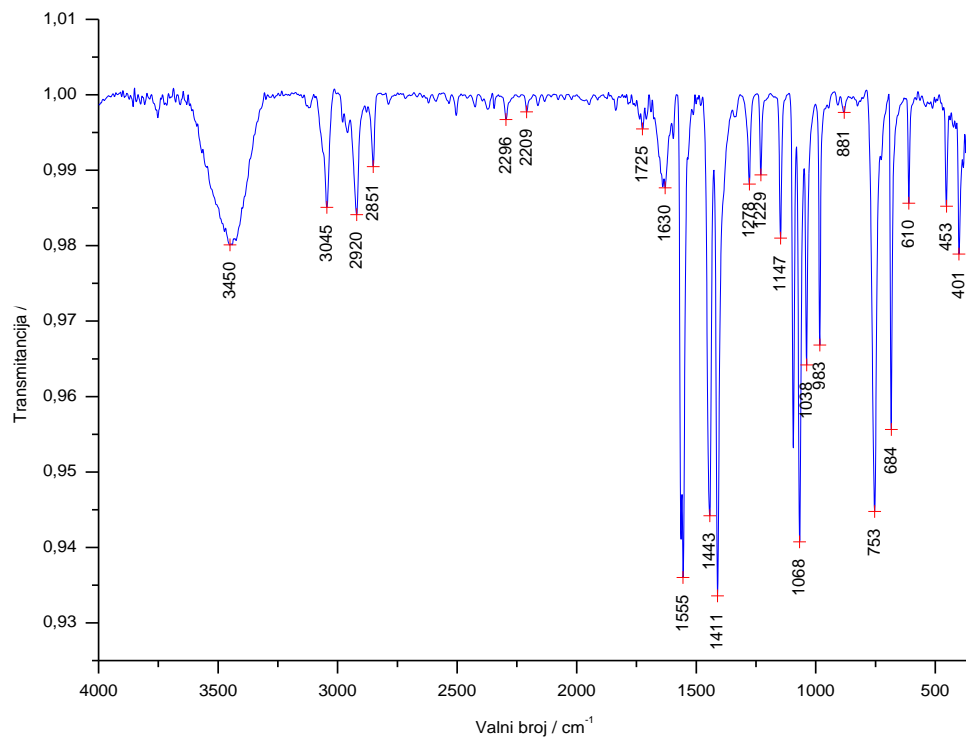


A

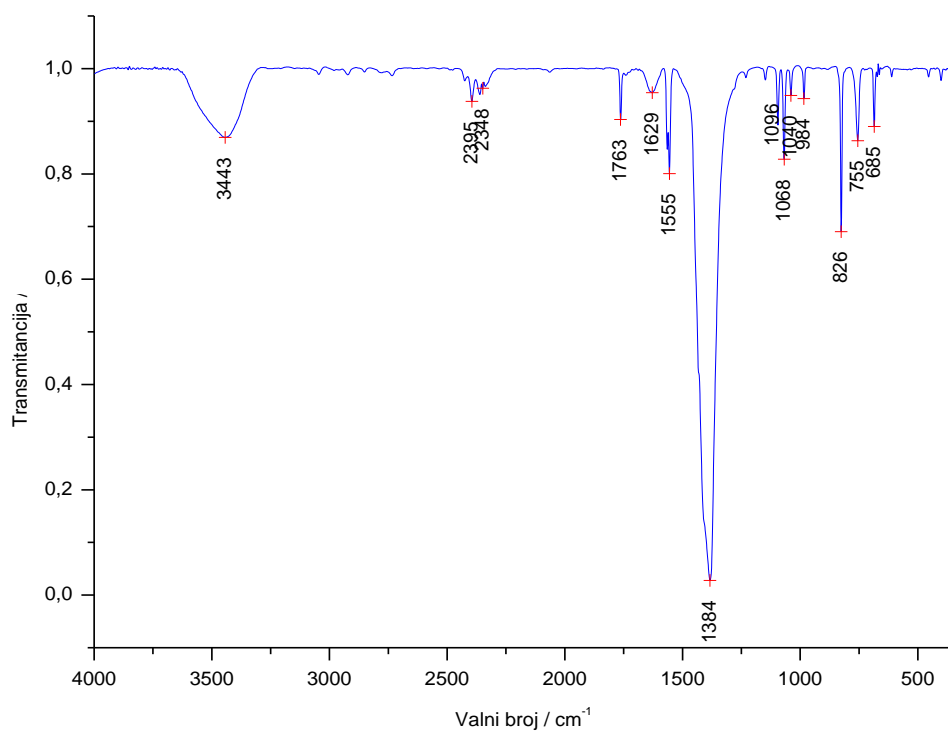


B

Slika D19. Spektri IR A) 2-Brpy (L2) i B) [Ag(NO<sub>3</sub>)(2-Brpy)<sub>2</sub>] (K<sub>2</sub>).



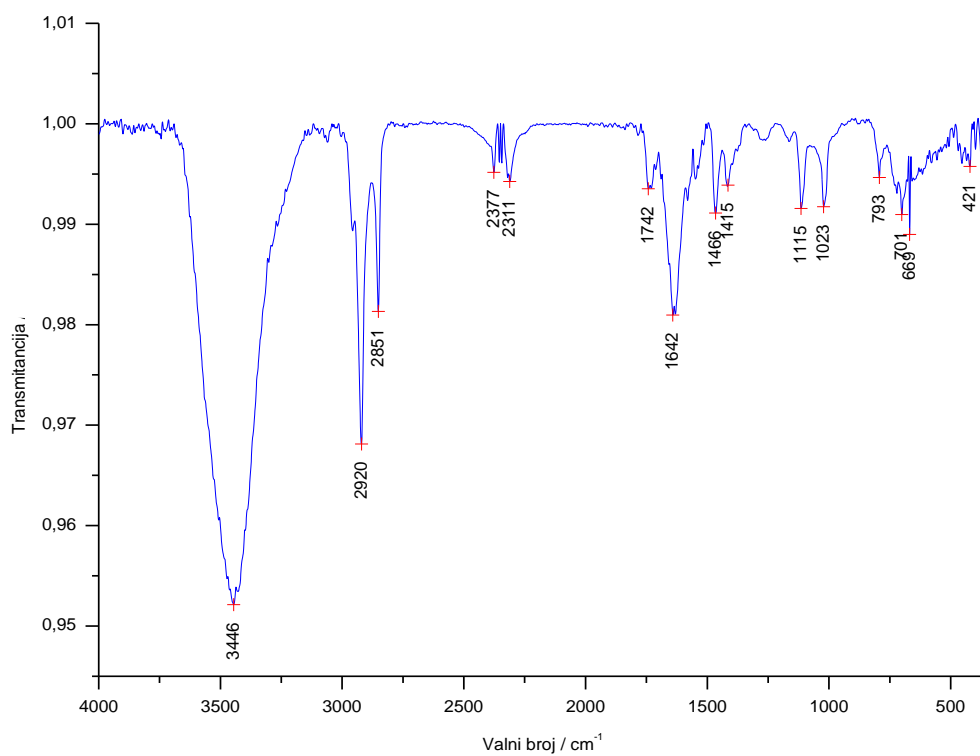
A



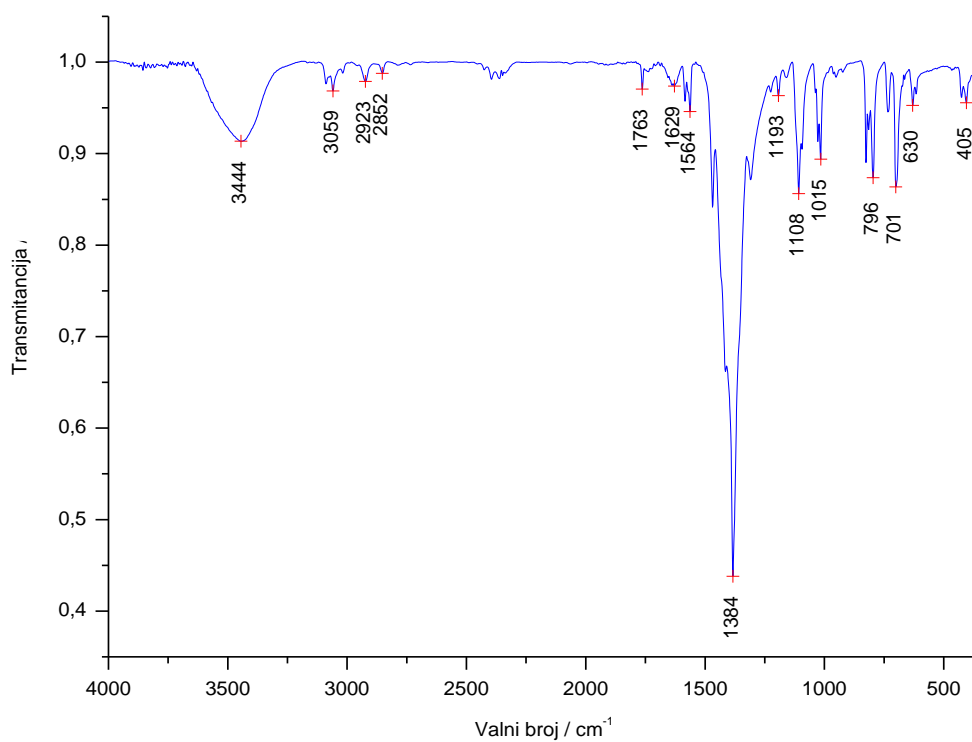
B

Slika D20. Spektri IR A) 2-Ipy (L3) i B) [Ag(NO<sub>3</sub>)(2-Ipy)<sub>2</sub>] (K3).



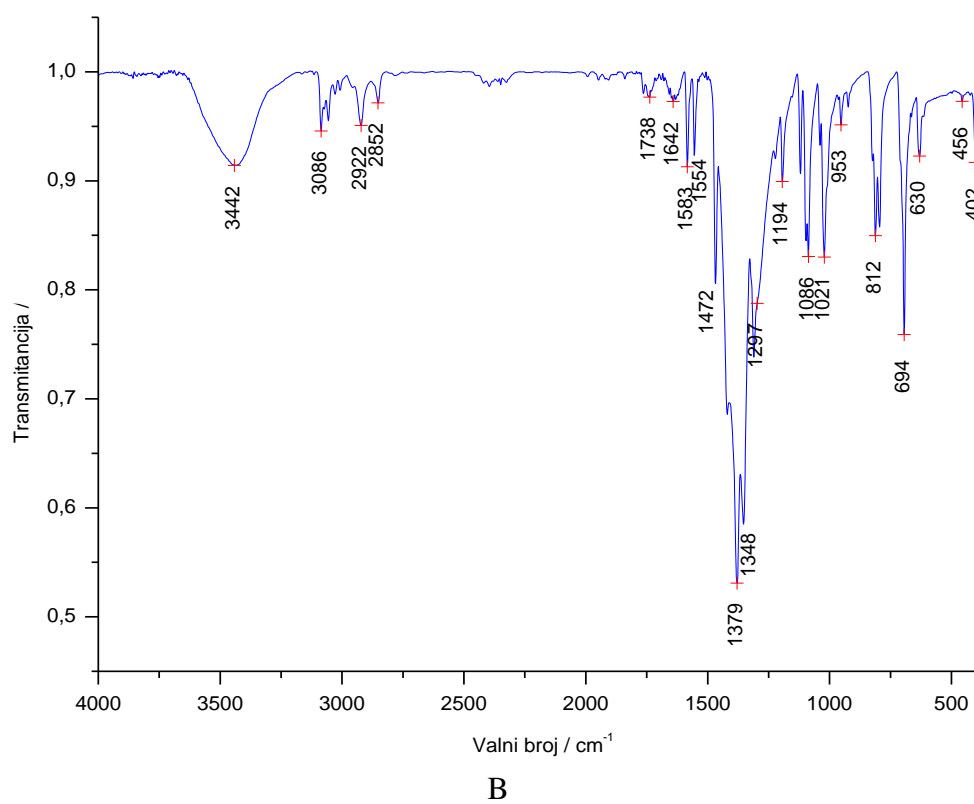
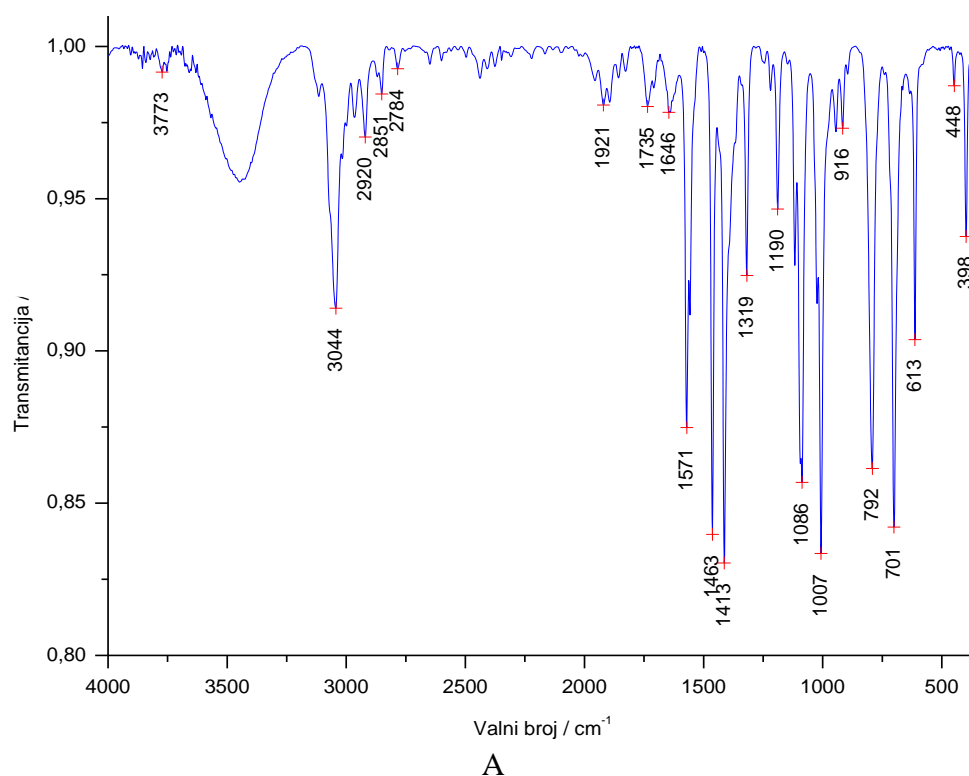


A

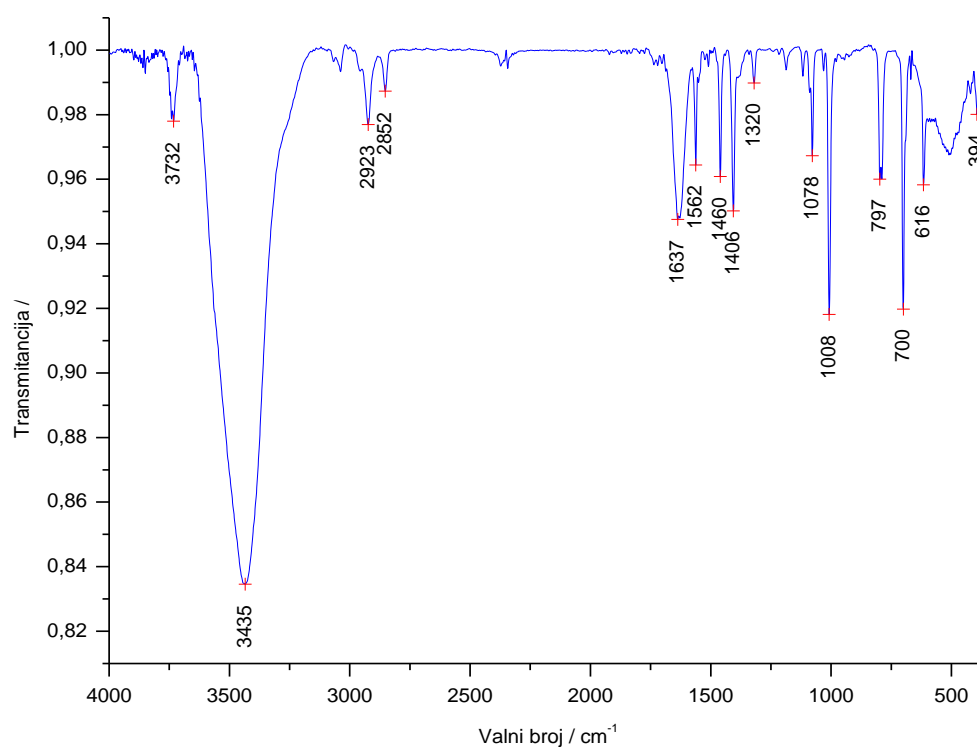


B

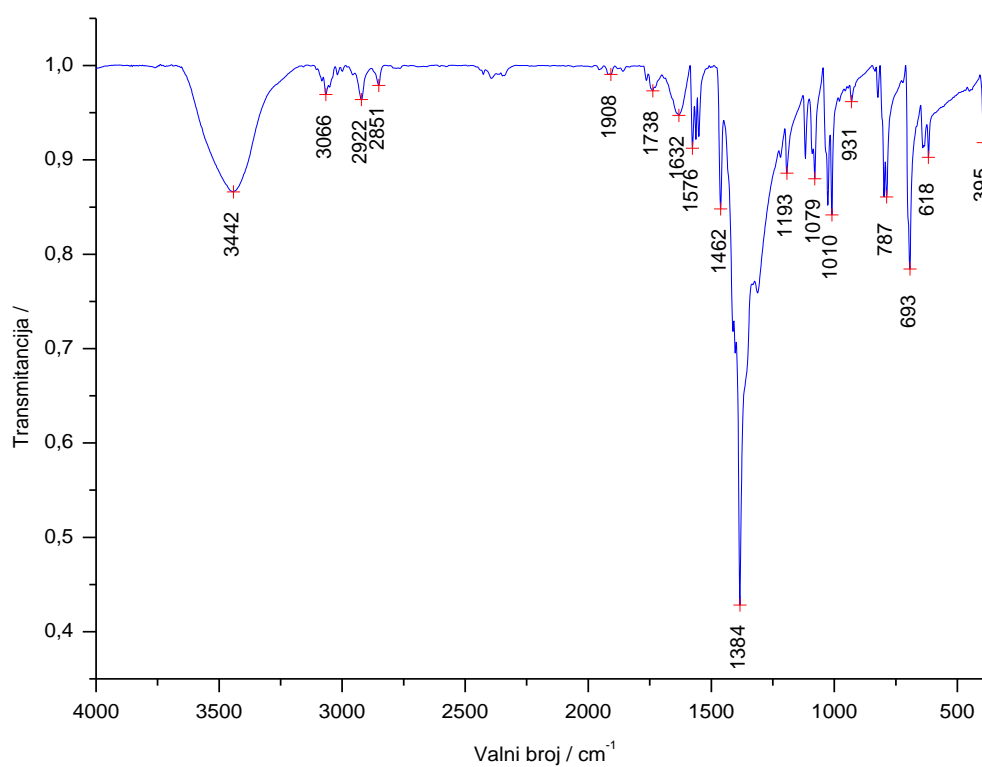
*Slika D21. Spektiri IR A) 3-Clpy (L4) i B) [Ag(NO<sub>3</sub>)(3-Clpy)<sub>2</sub>] (K4).*



Slika D22. Spektri IR A) 3-Brpy (L5) i B) [Ag(NO<sub>3</sub>)(3-Brpy)<sub>2</sub>] (K5).

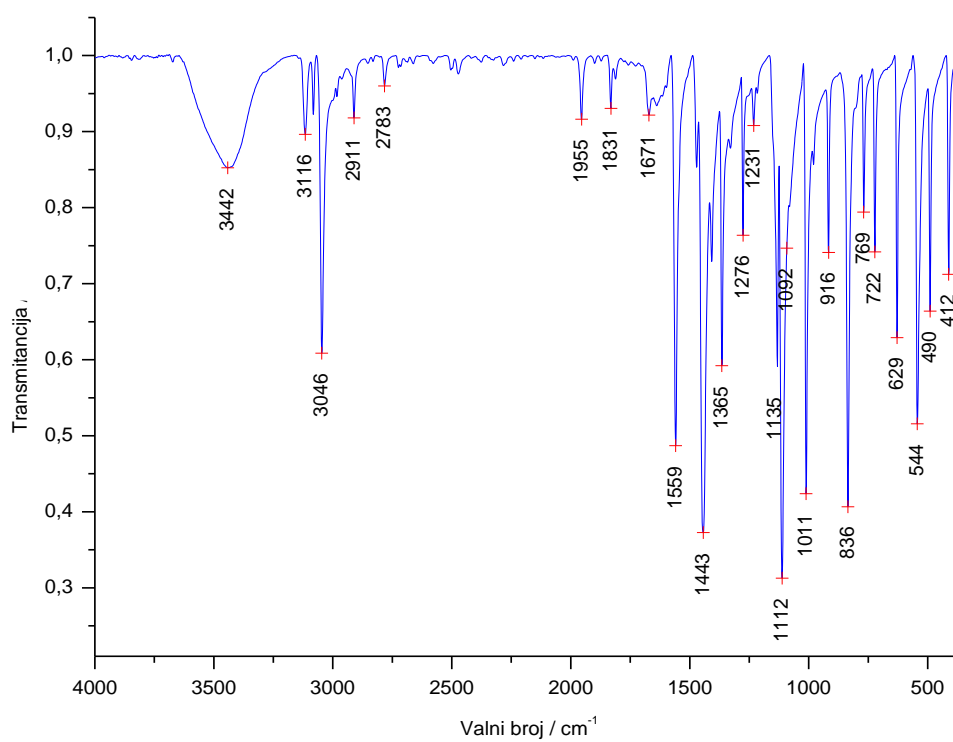


A

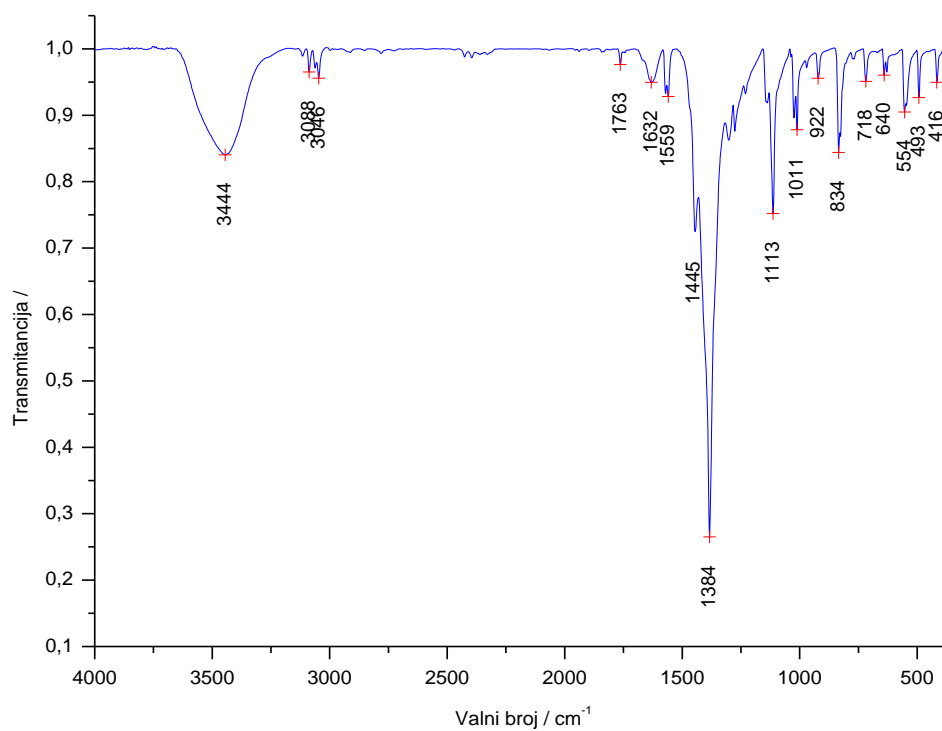


B

*Slika D23. Spektri IR A) 3-Ipy (L6) i B) [Ag(NO<sub>3</sub>)(3-Ipy)<sub>2</sub>] (K6).*

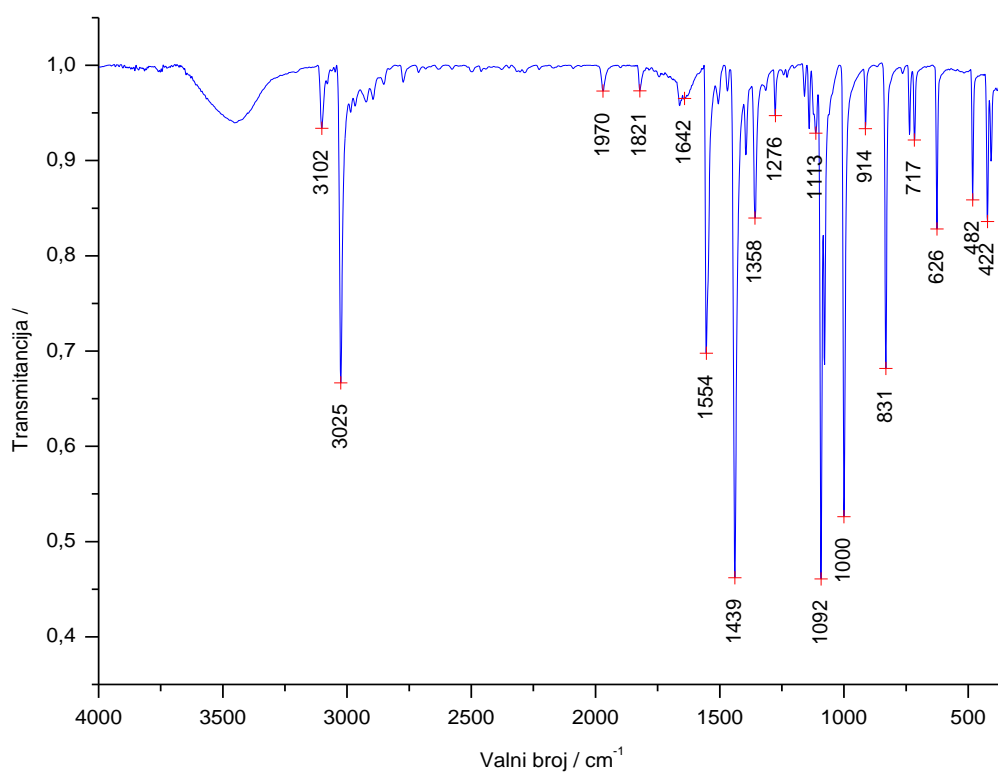


A

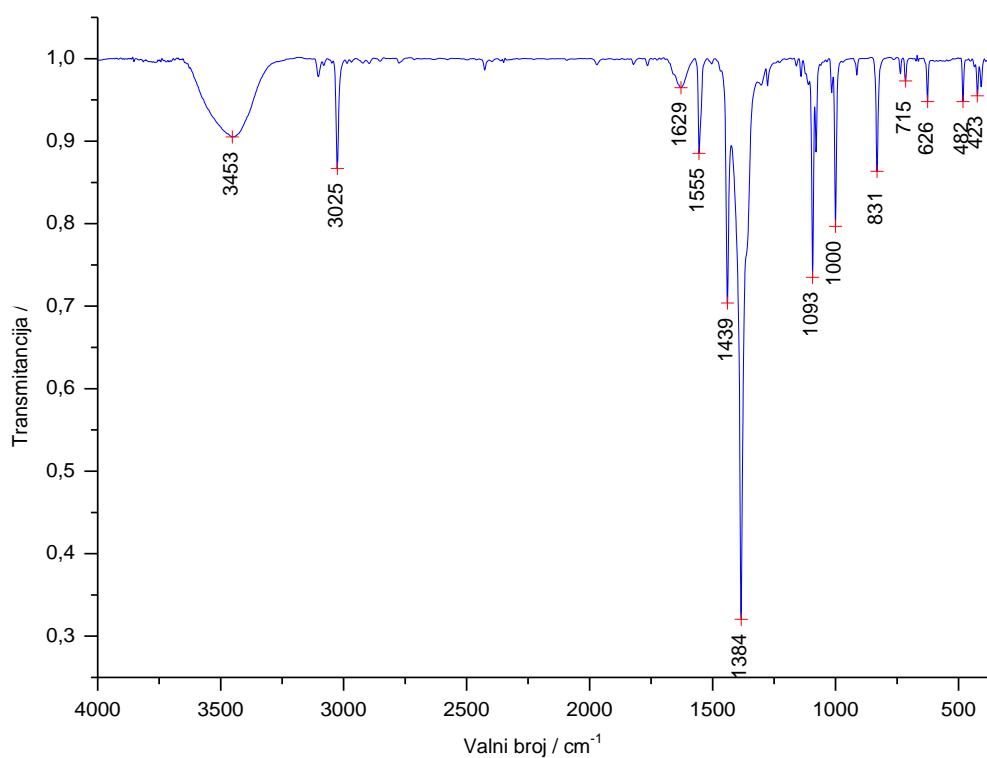


B

**Slika D24.** Spektri IR A) 2,5-Cl<sub>2</sub>py (L7) i B) [Ag(NO<sub>3</sub>)(2,5-Cl<sub>2</sub>py)<sub>2</sub>] (K7).

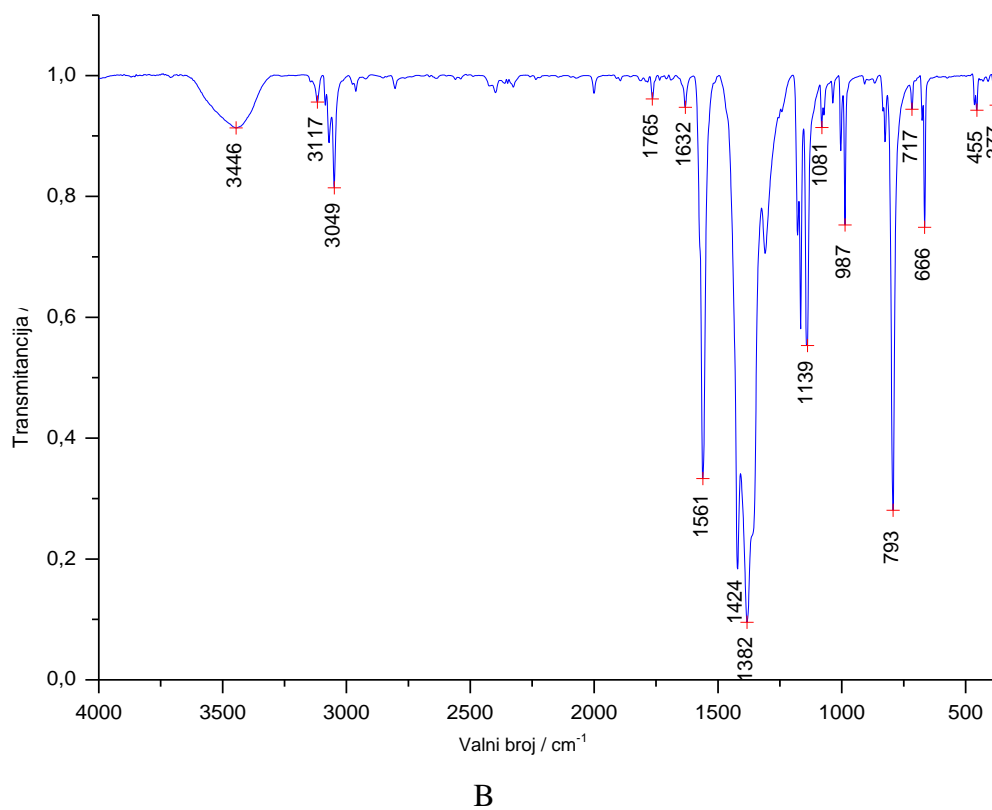
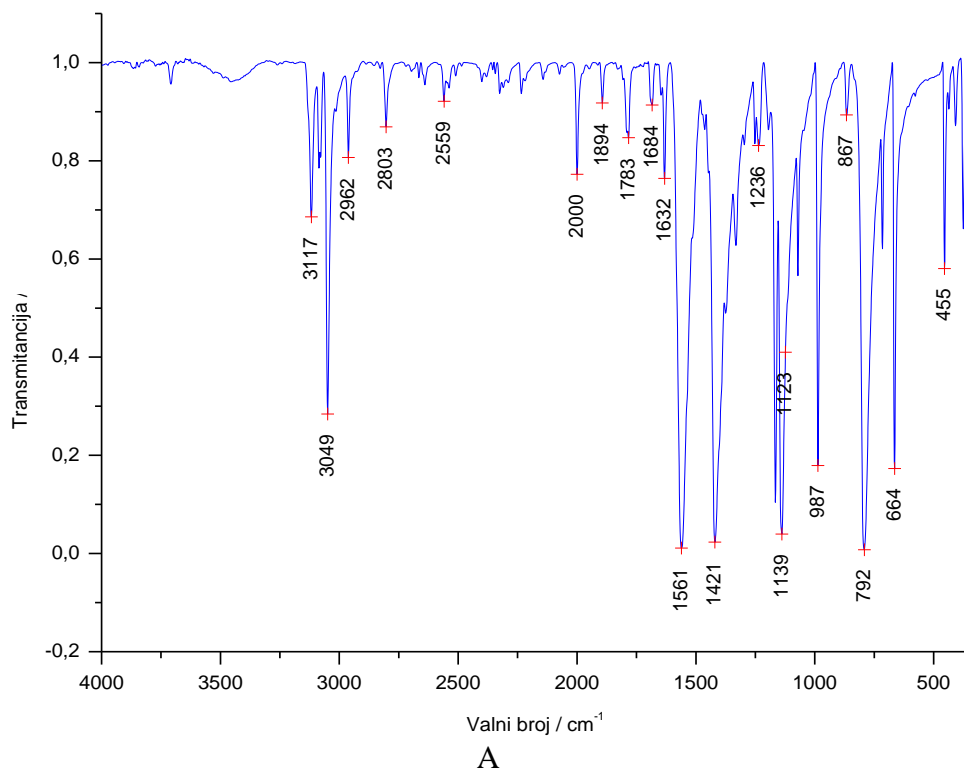


A

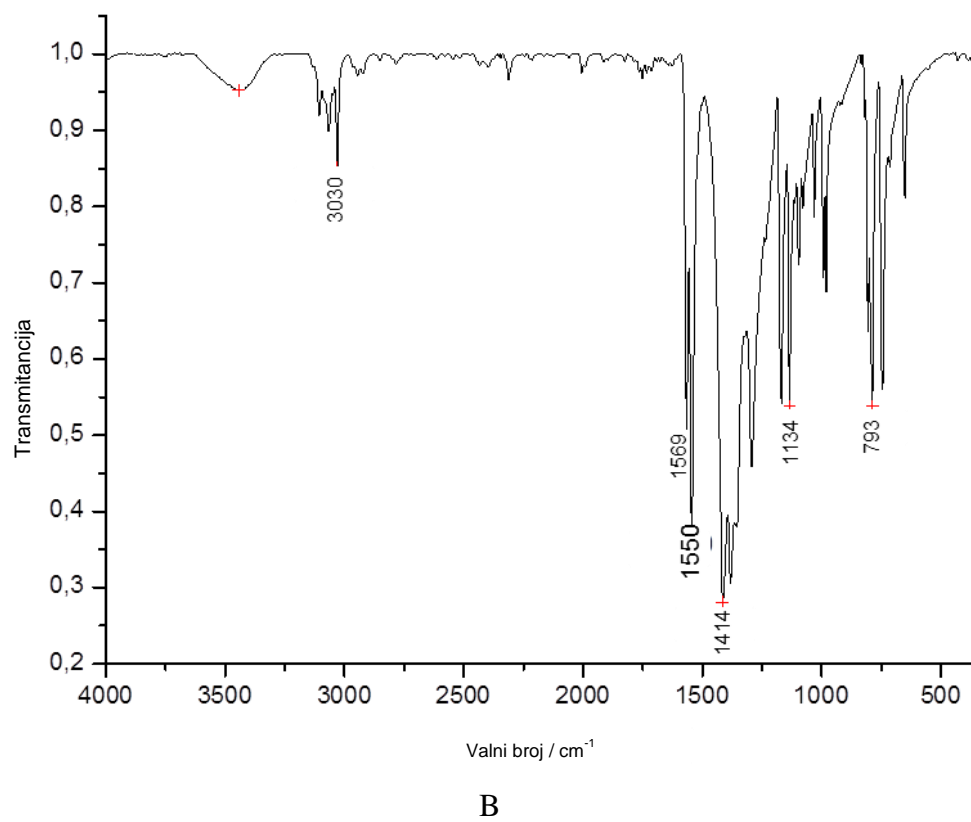
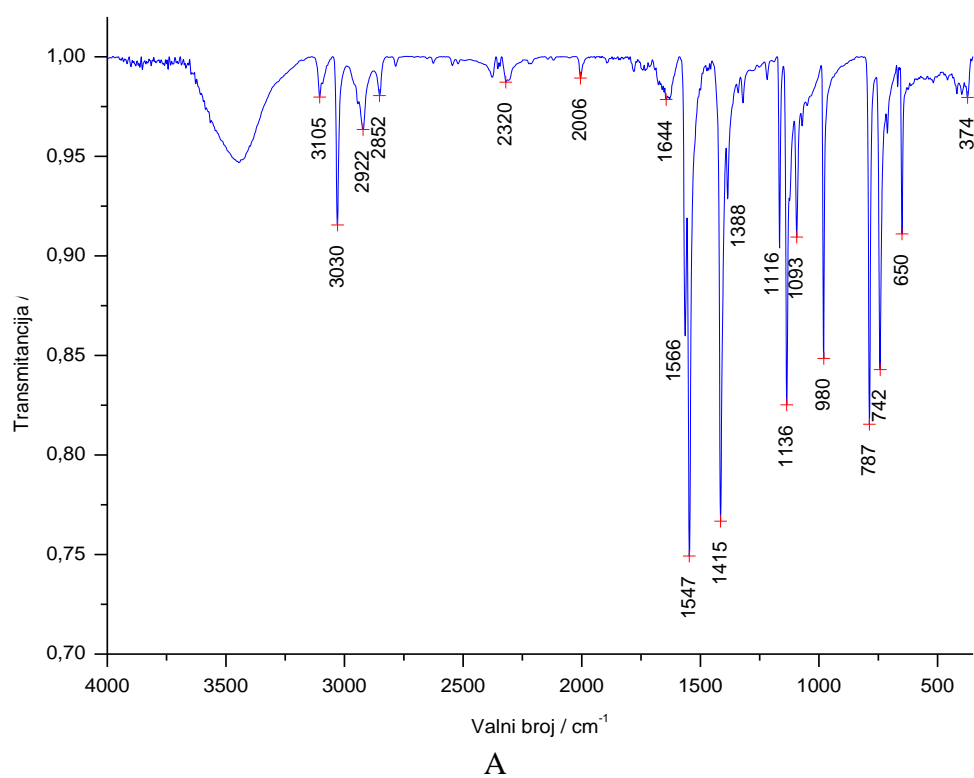


B

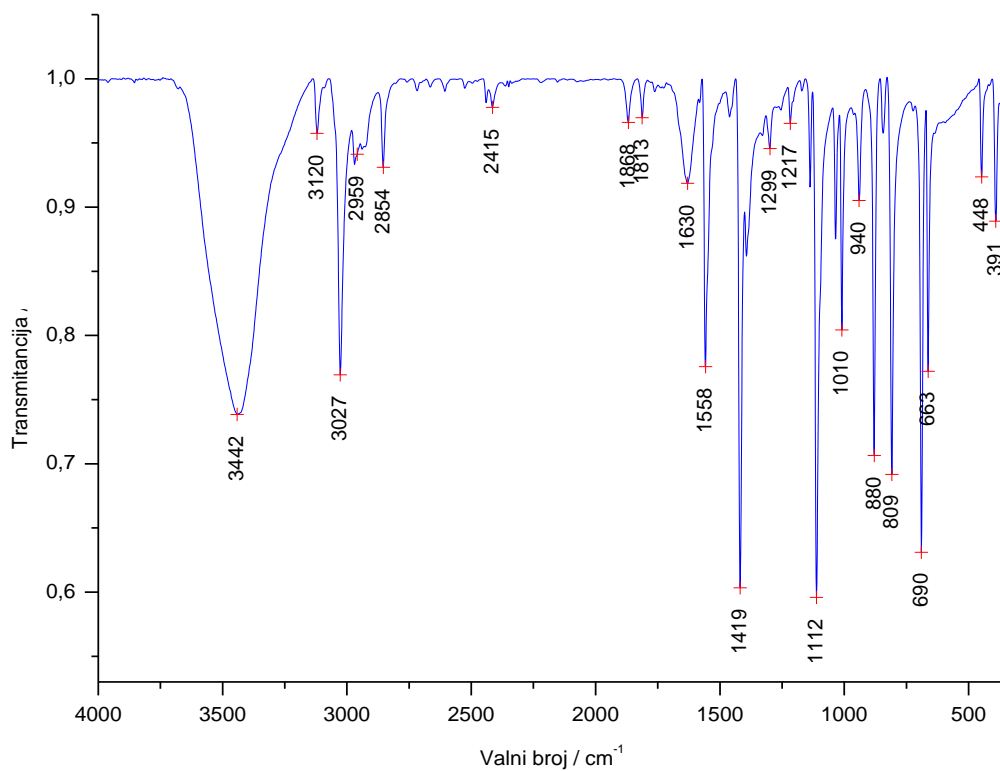
*Slika D25. Spektri IR A) 2,5-Br<sub>2</sub>py (L8) i B) [Ag(NO<sub>3</sub>)(2,5-Br<sub>2</sub>py)<sub>2</sub>] (K8).*



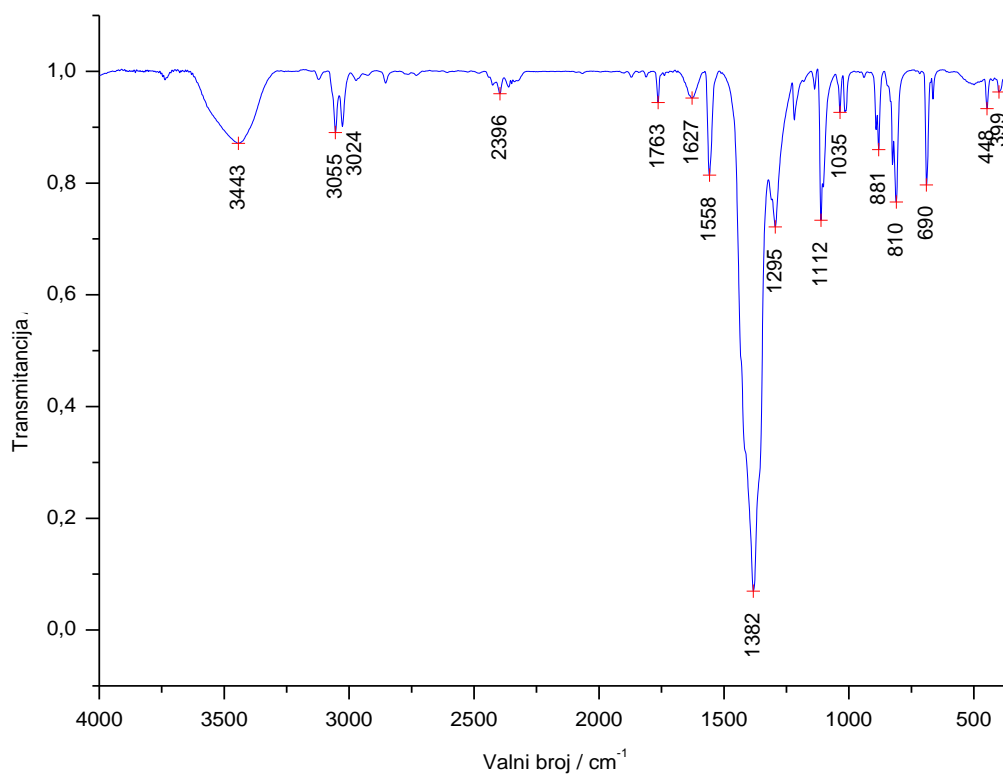
*Slika D26. Spektri IR A) 2,6-Cl<sub>2</sub>py (L9) i B) [Ag(NO<sub>3</sub>)(2,6-Cl<sub>2</sub>py)<sub>2</sub>] (K9).*



Slika D27. Spektri IR A) 2,6-Br<sub>2</sub>py (L10) i B) [Ag(NO<sub>3</sub>)(2,6-Br<sub>2</sub>py)<sub>2</sub>] (K10).



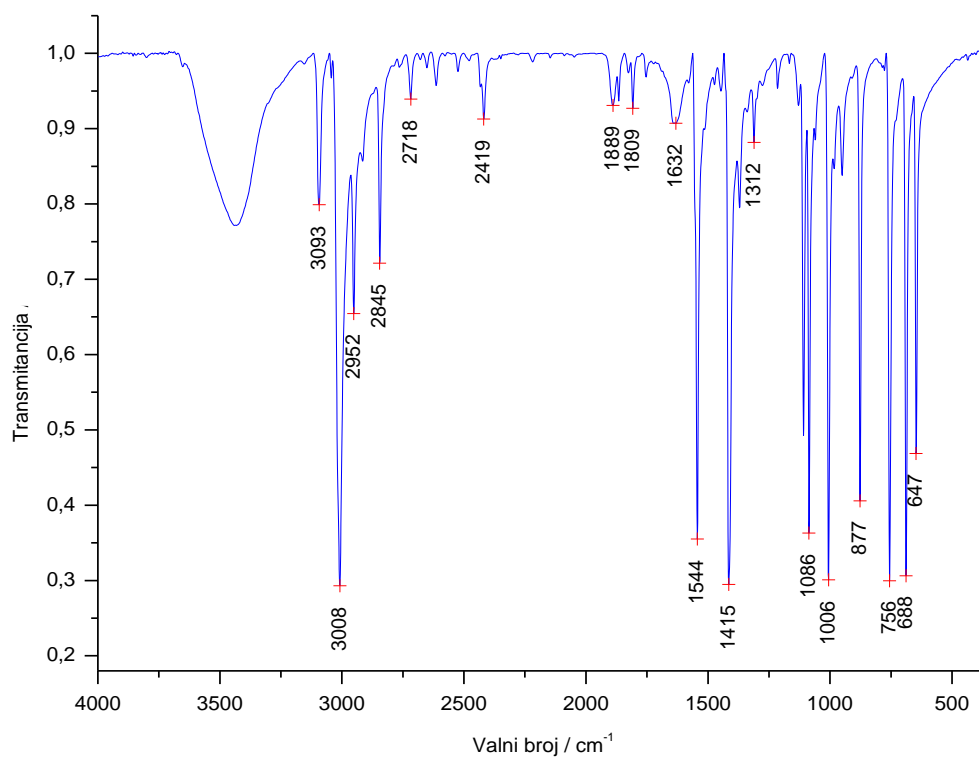
A



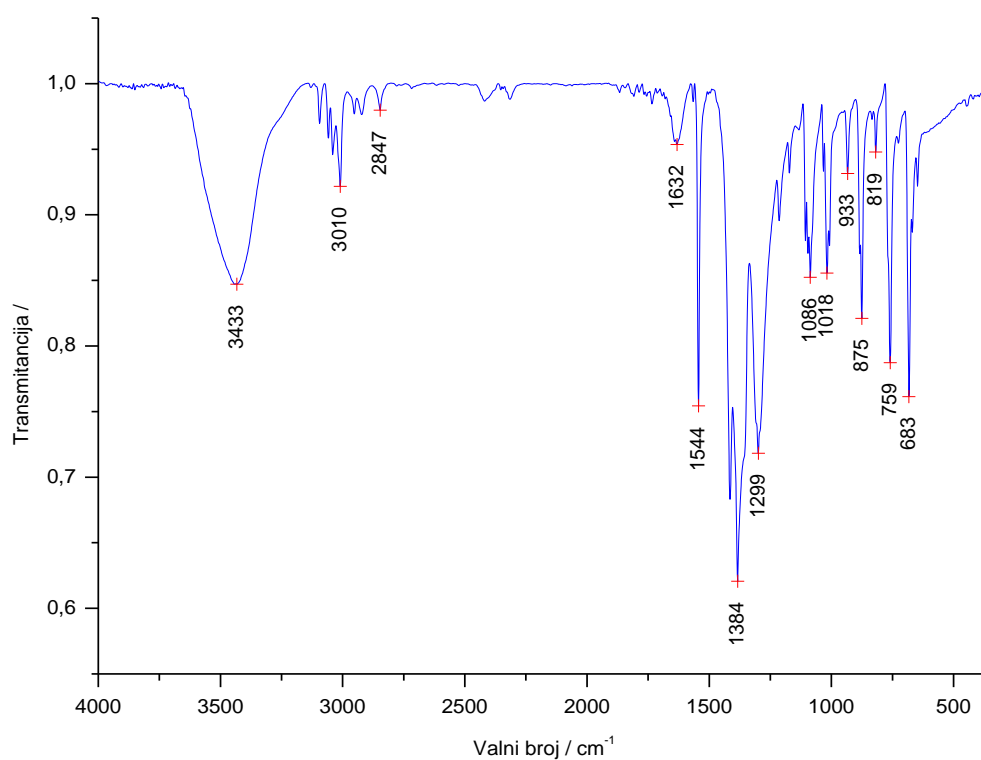
B

Slika D28. Spektri IR A) 3,5-Cl<sub>2</sub>py (LII) i B) [Ag(NO<sub>3</sub>)(3,5-Cl<sub>2</sub>py)<sub>2</sub>] (KII).





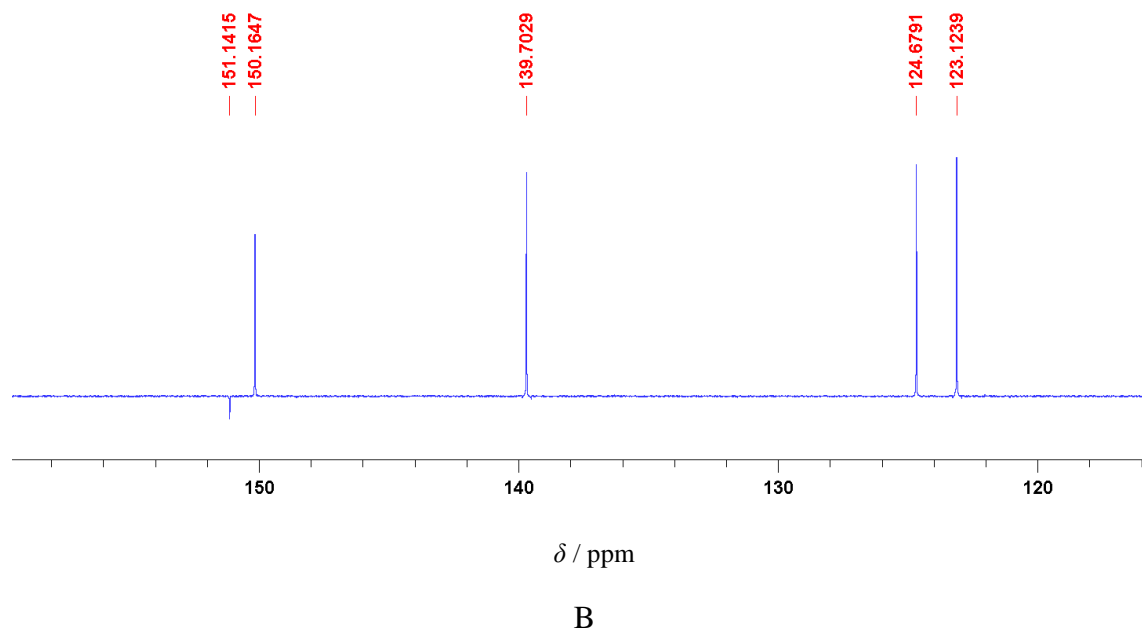
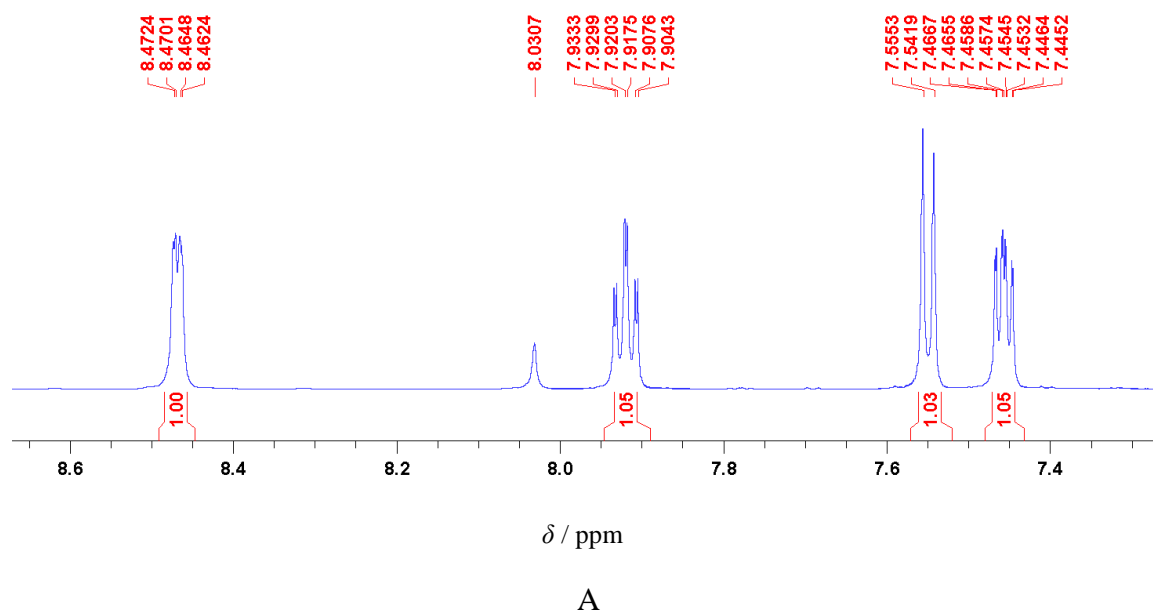
A



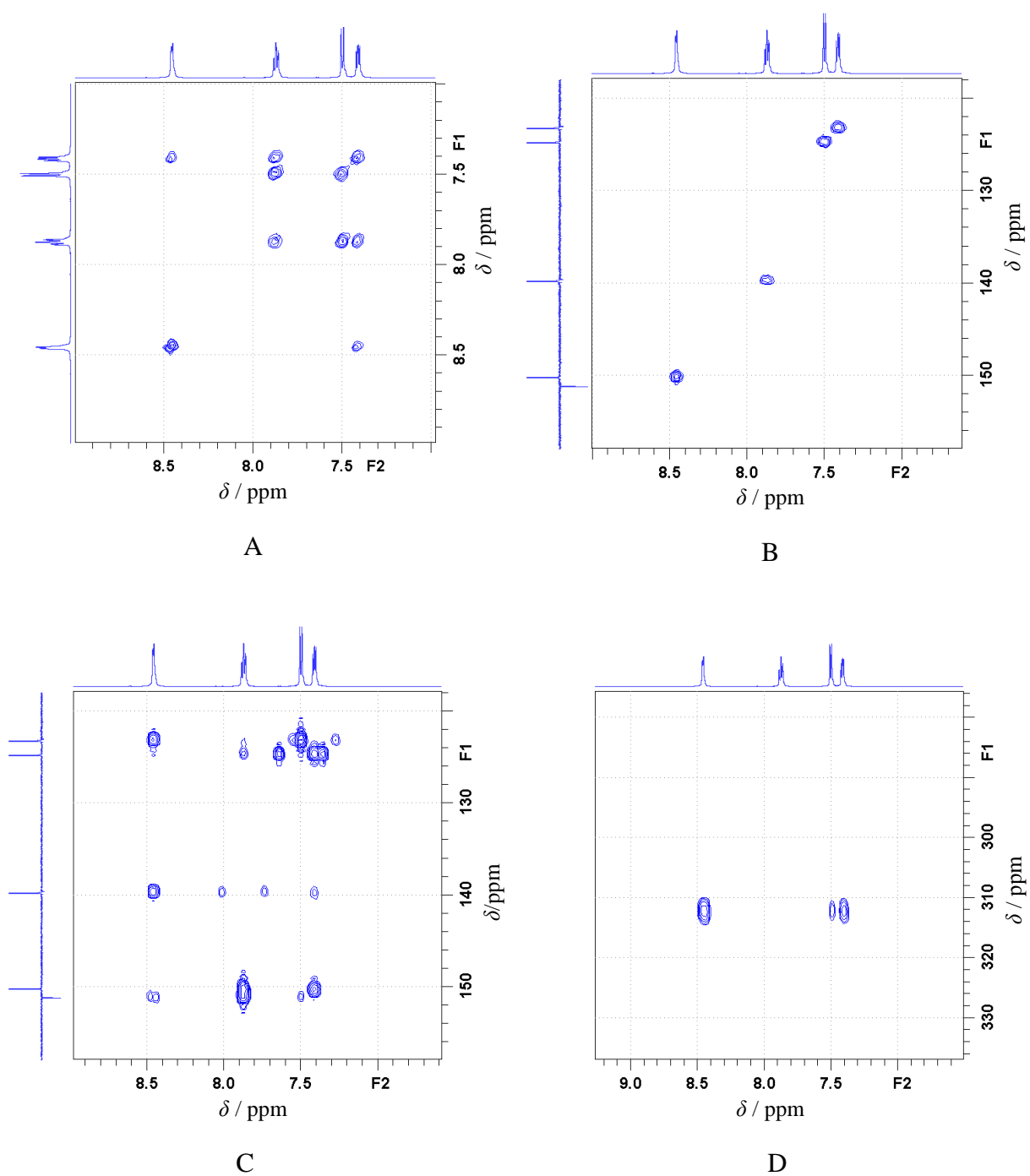
B

**Slika D29.** Spektri IR A) 3,5-Br<sub>2</sub>py (L12) i B) [Ag(NO<sub>3</sub>)(3,5-Br<sub>2</sub>py)<sub>2</sub>] (K12).

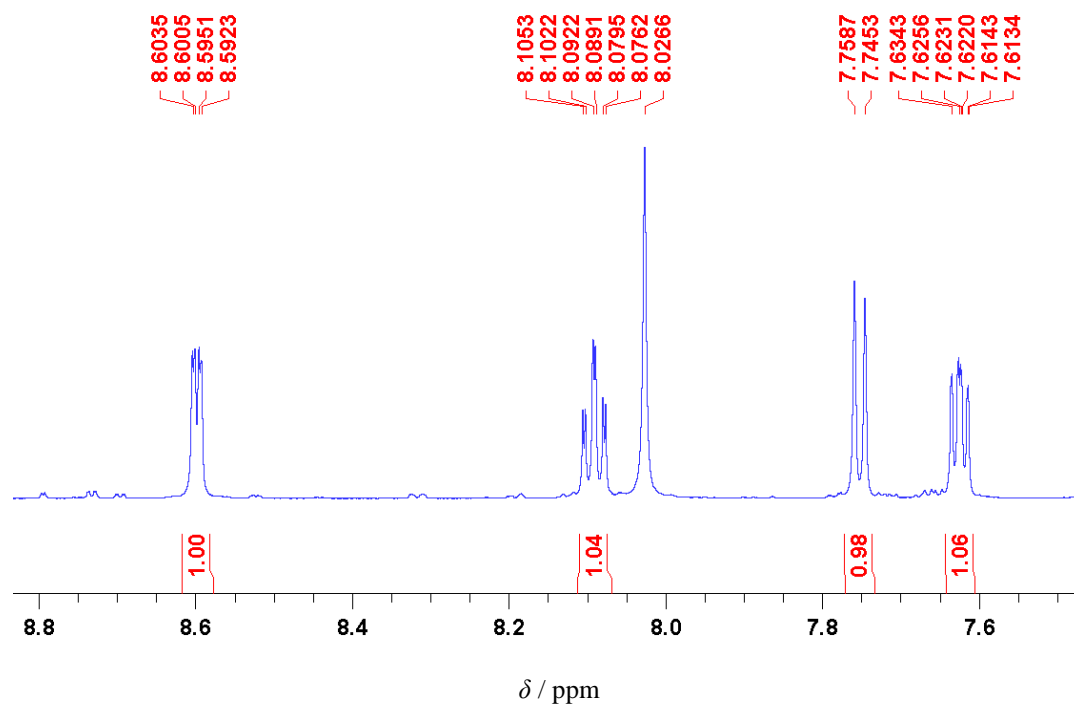
### 8.3. Slike spektara i drugi odabrani podaci dobiveni spektroskopijom NMR



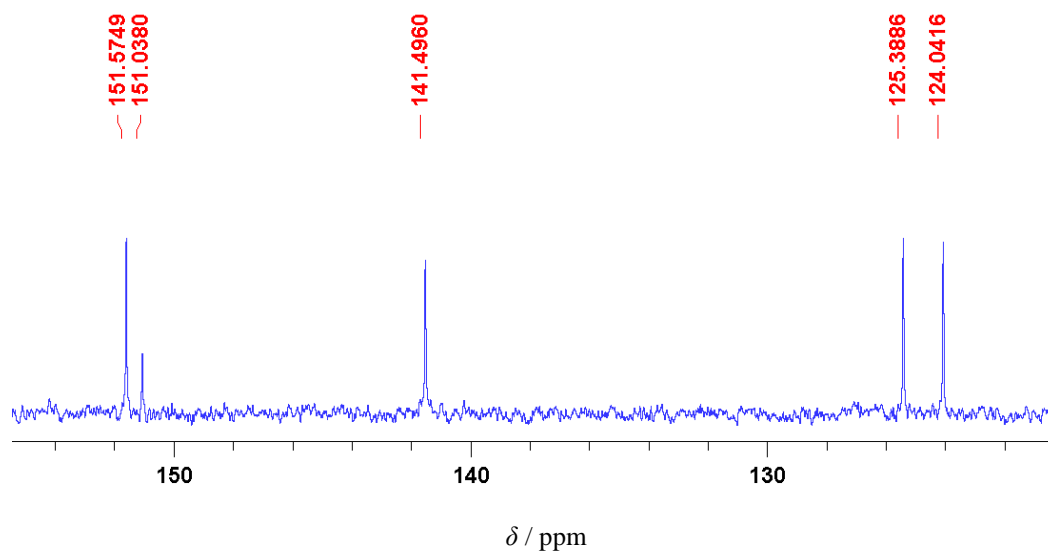
Slika D30. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 2-Clpy, (L1).



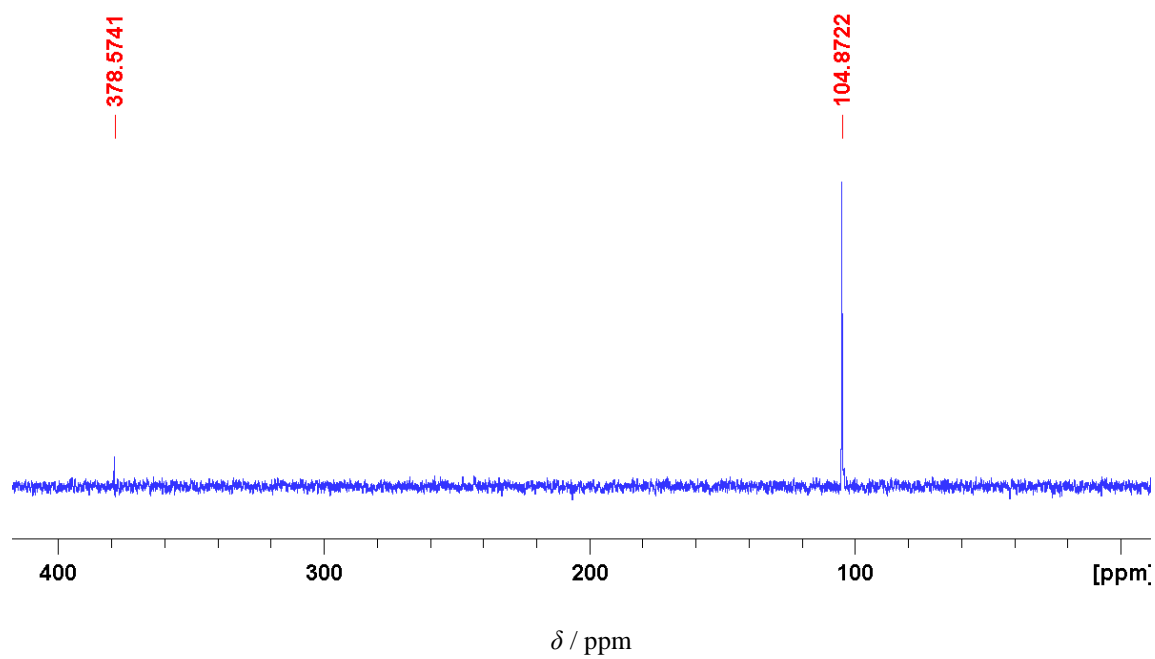
**Slika D31.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 2-Clpy, (L1).



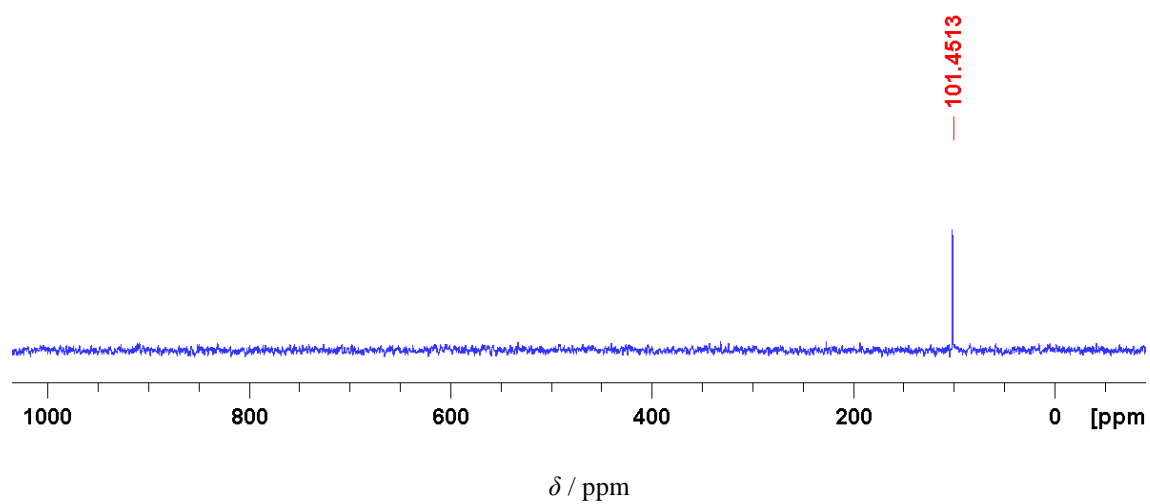
A



B

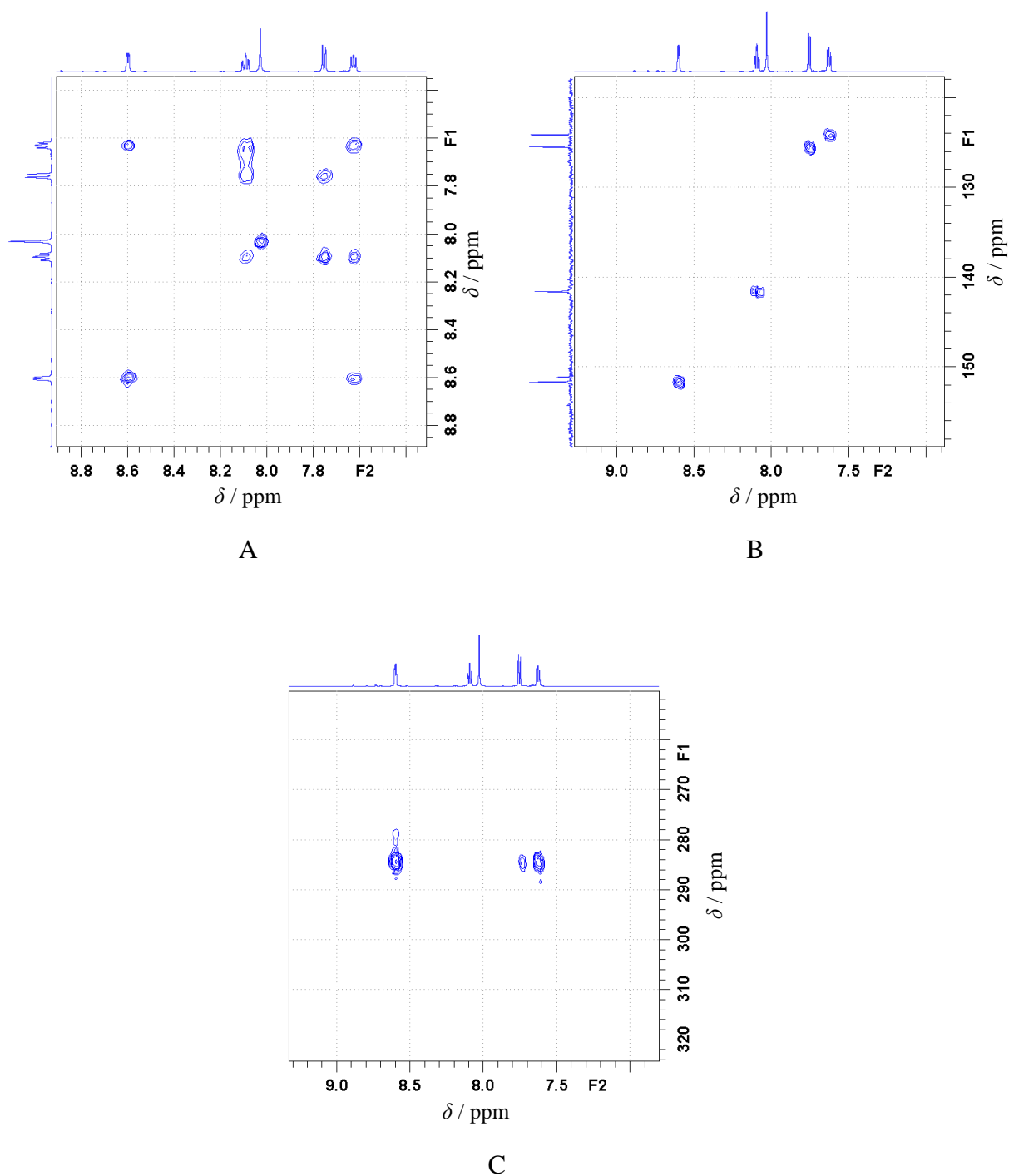


C

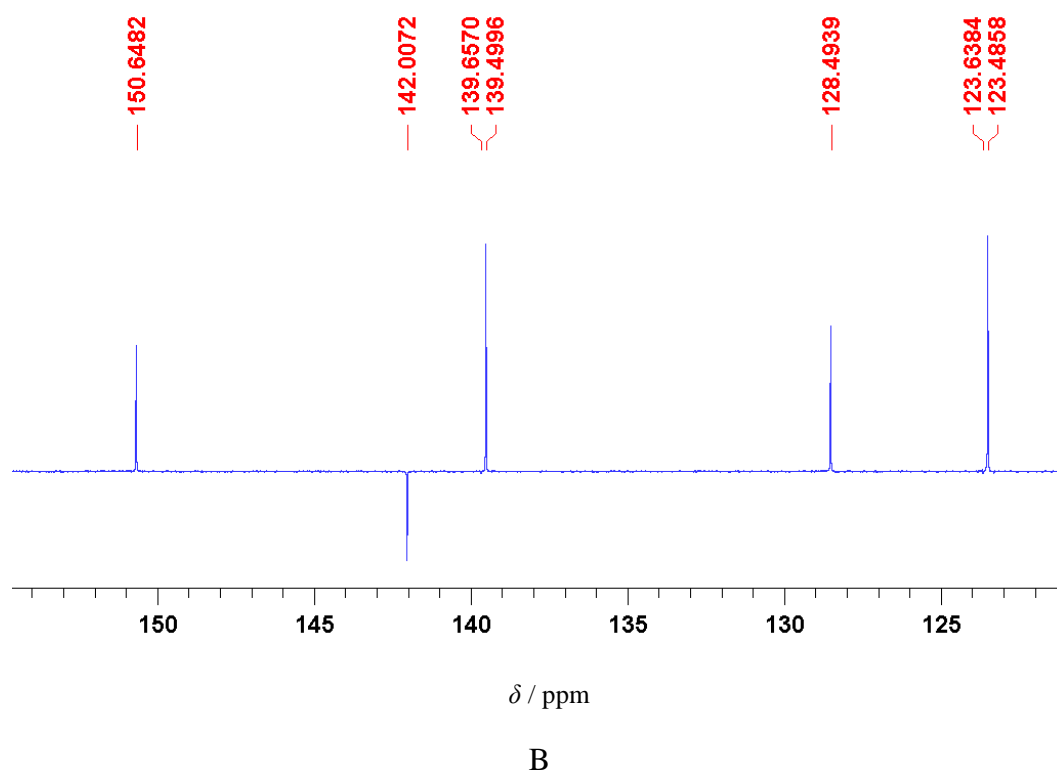
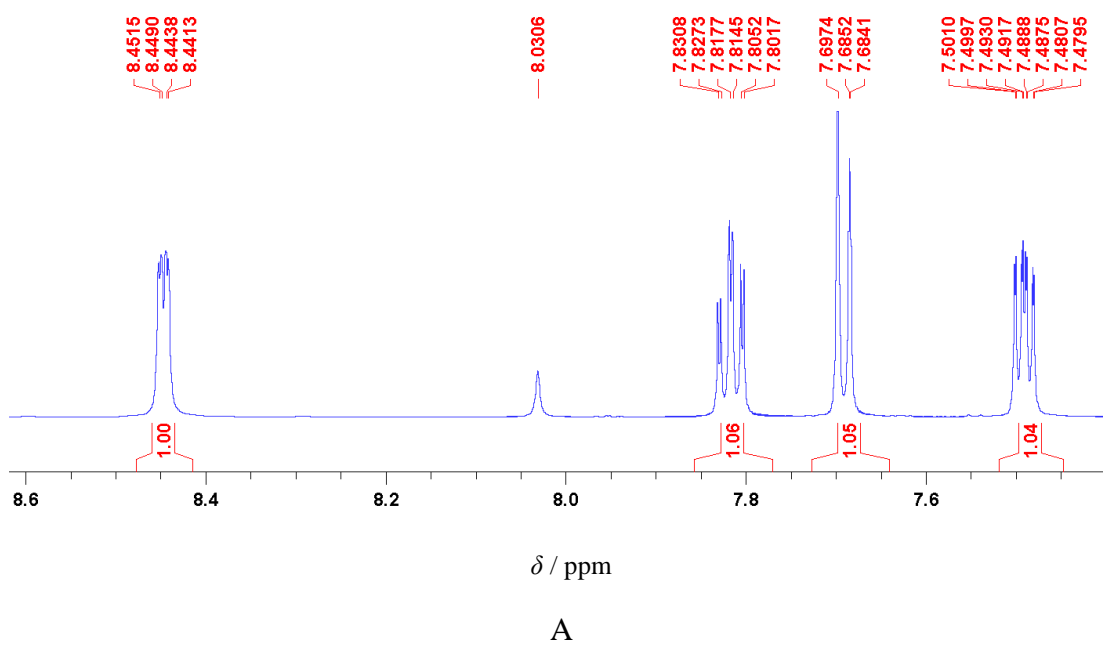


D

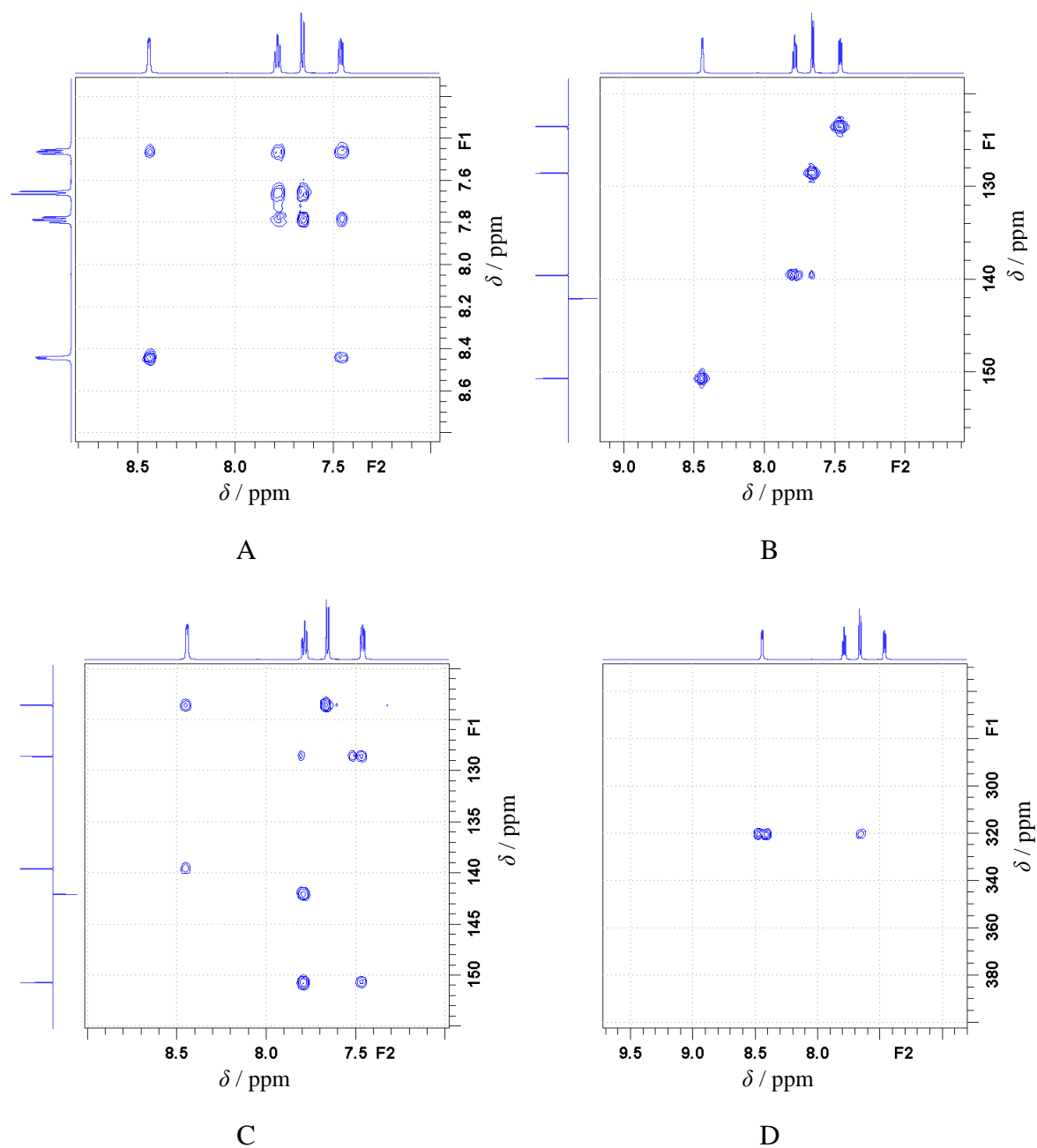
*Slika D32.* A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri spoja  $[\text{Ag}(\text{NO}_3)(2\text{-Clpy})_2]$ , (**K1**).



**Slika D33.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC i C)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2\text{-Clpy})_2]$ , (**K1**).

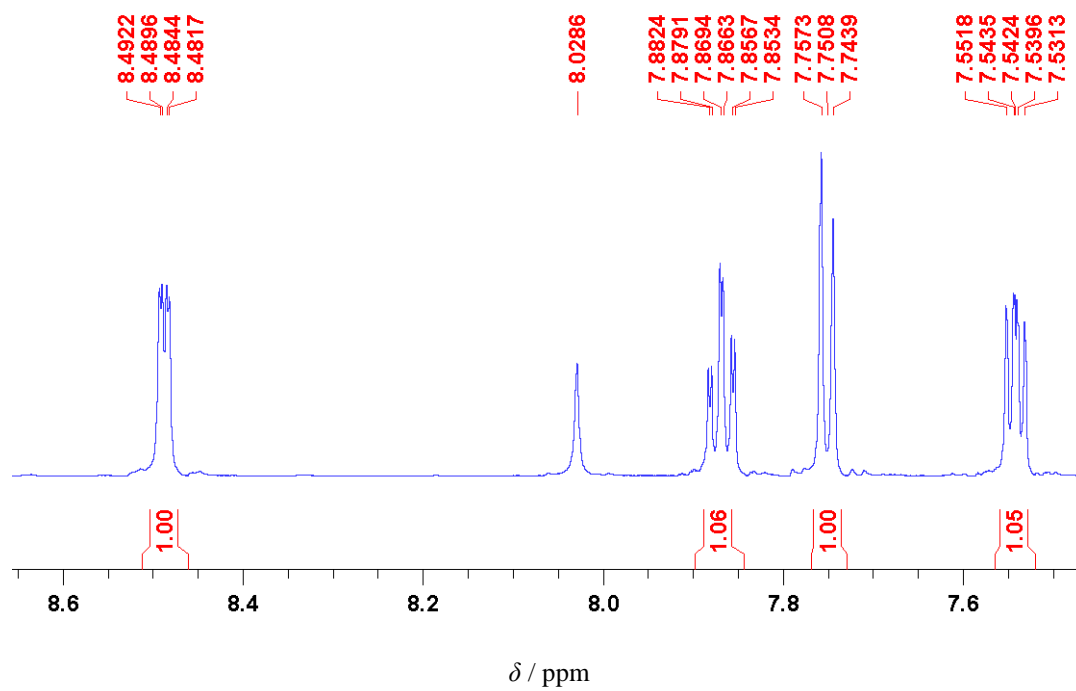


Slika D34. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 2-Brpy, (L2).

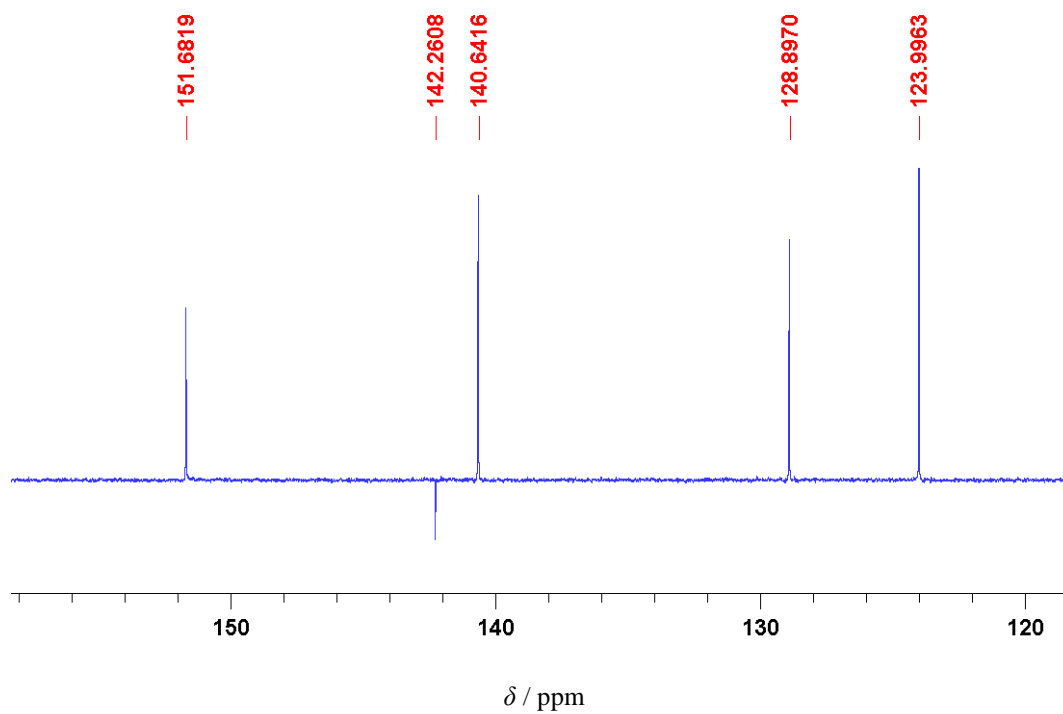


**Slika D35.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 2-Brpy, (L2).

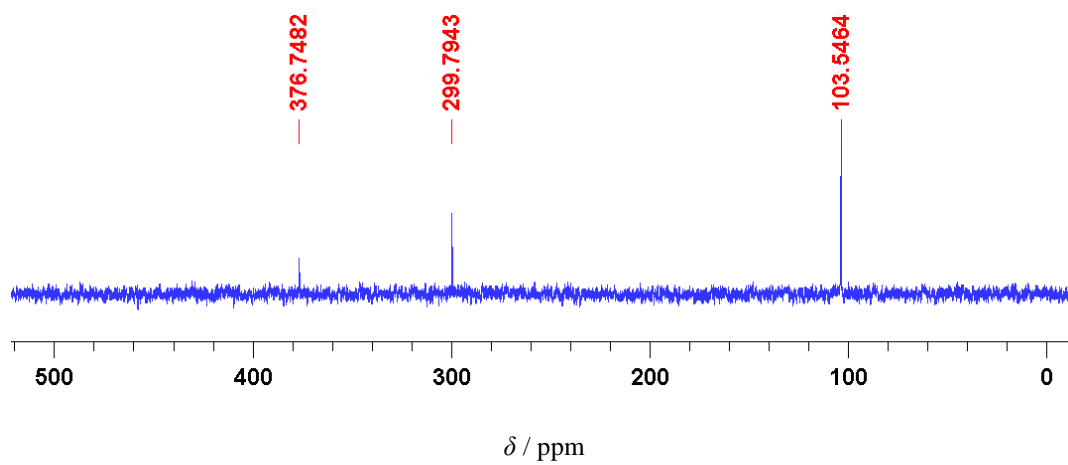




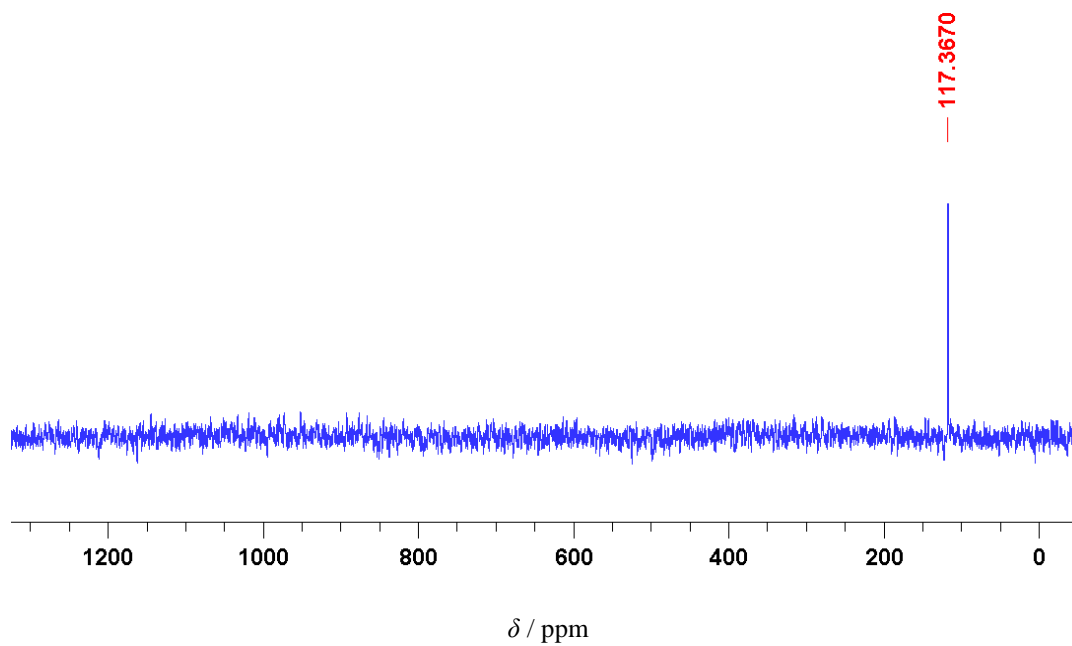
A



B

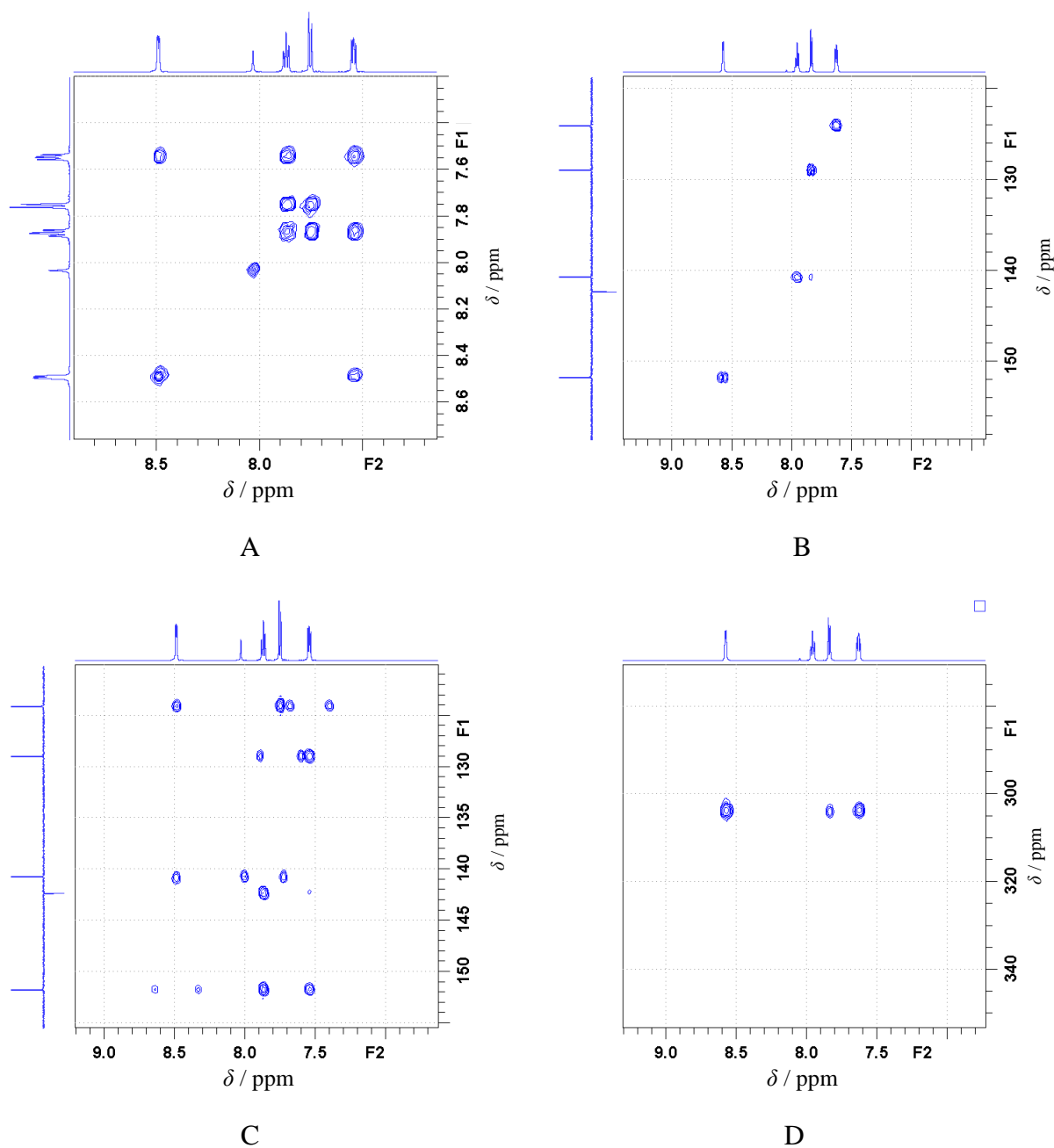


C

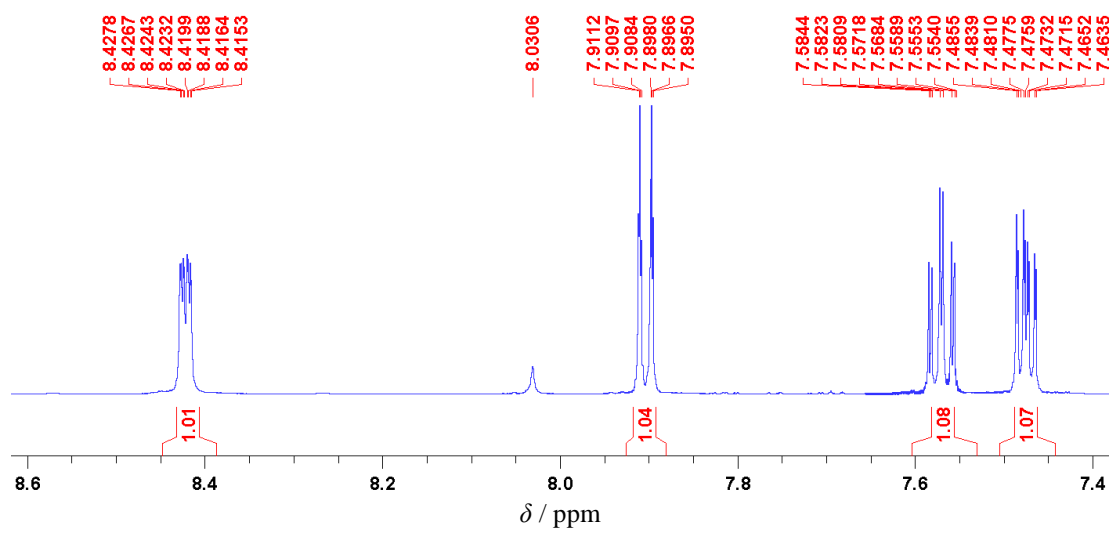


D

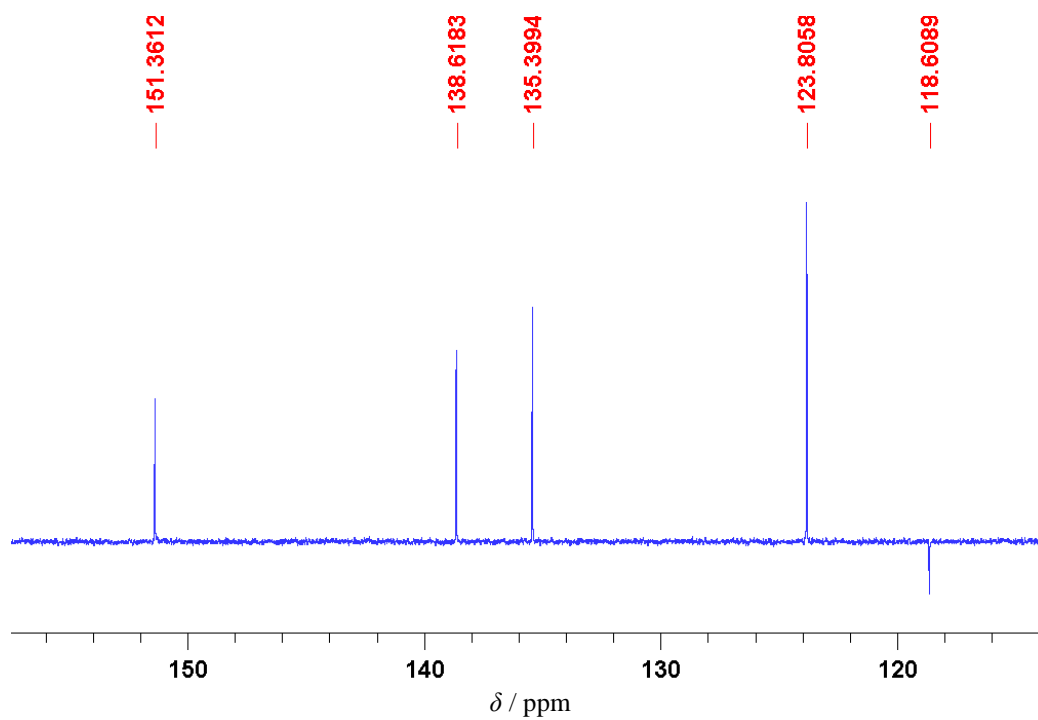
*Slika D36. A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri spoja  $[\text{Ag}(\text{NO}_3)(2\text{-Brpy})_2]$ , (K2).*



**Slika D37.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja  $[\text{Ag}(\text{NO}_3)(2\text{-Brpy})_2]$ , (**K2**).

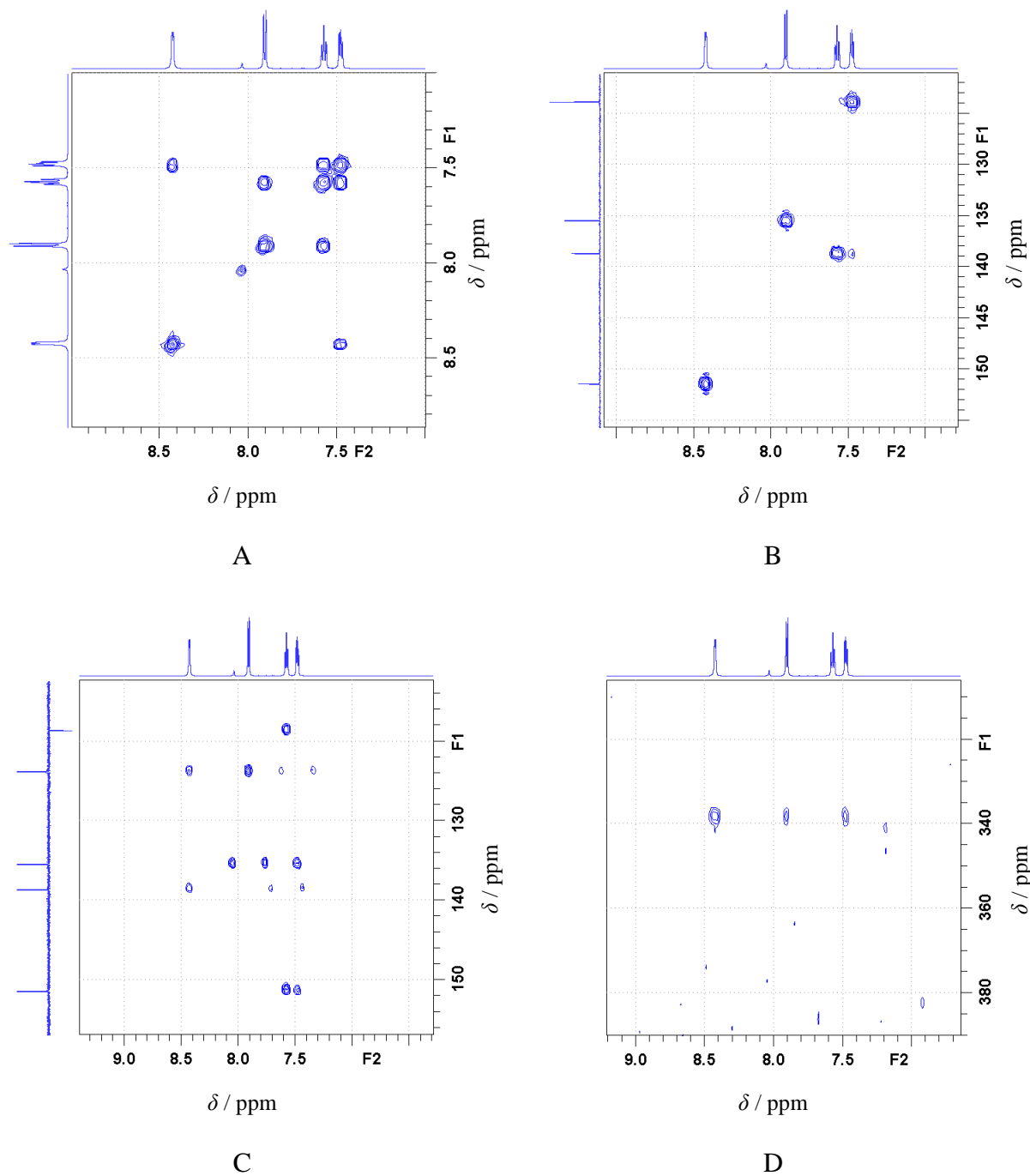


A

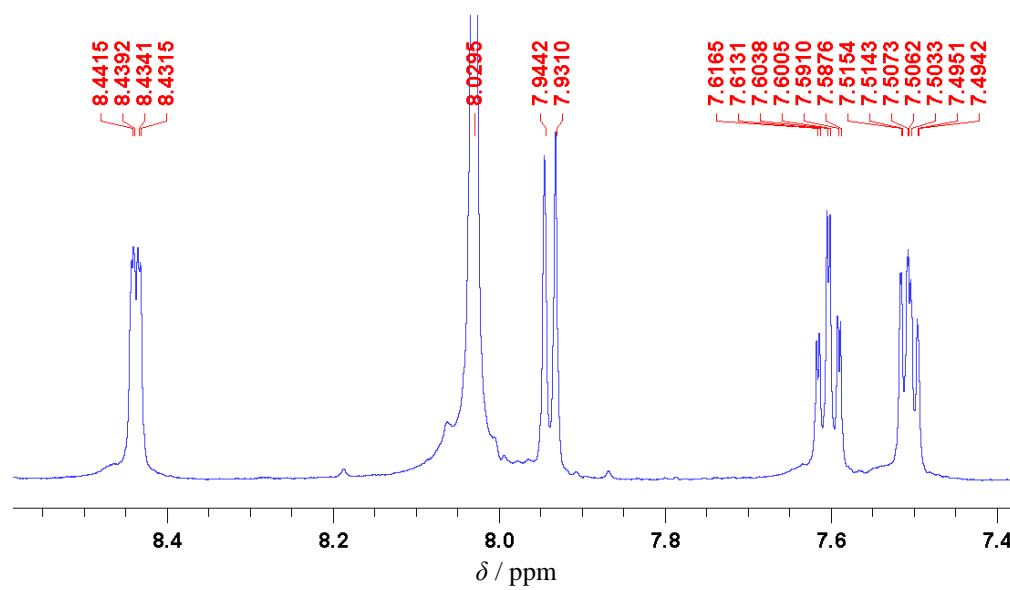


B

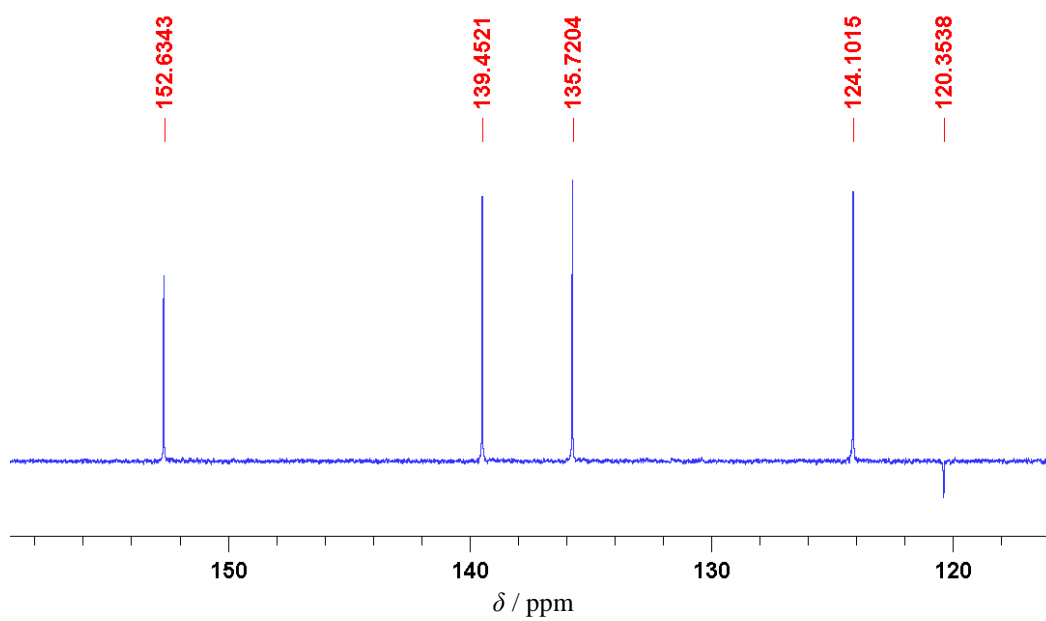
Slika D38. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 2-Ipy, (L3).



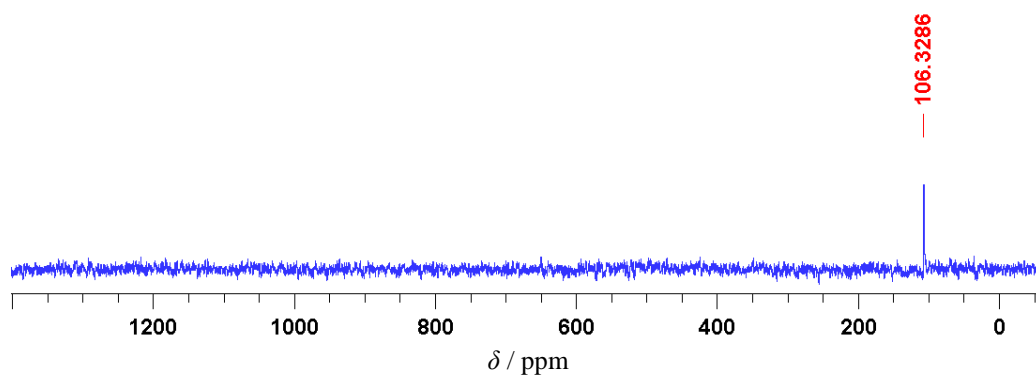
**Slika D39.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR liganda 2-Ipy, (**L3**).



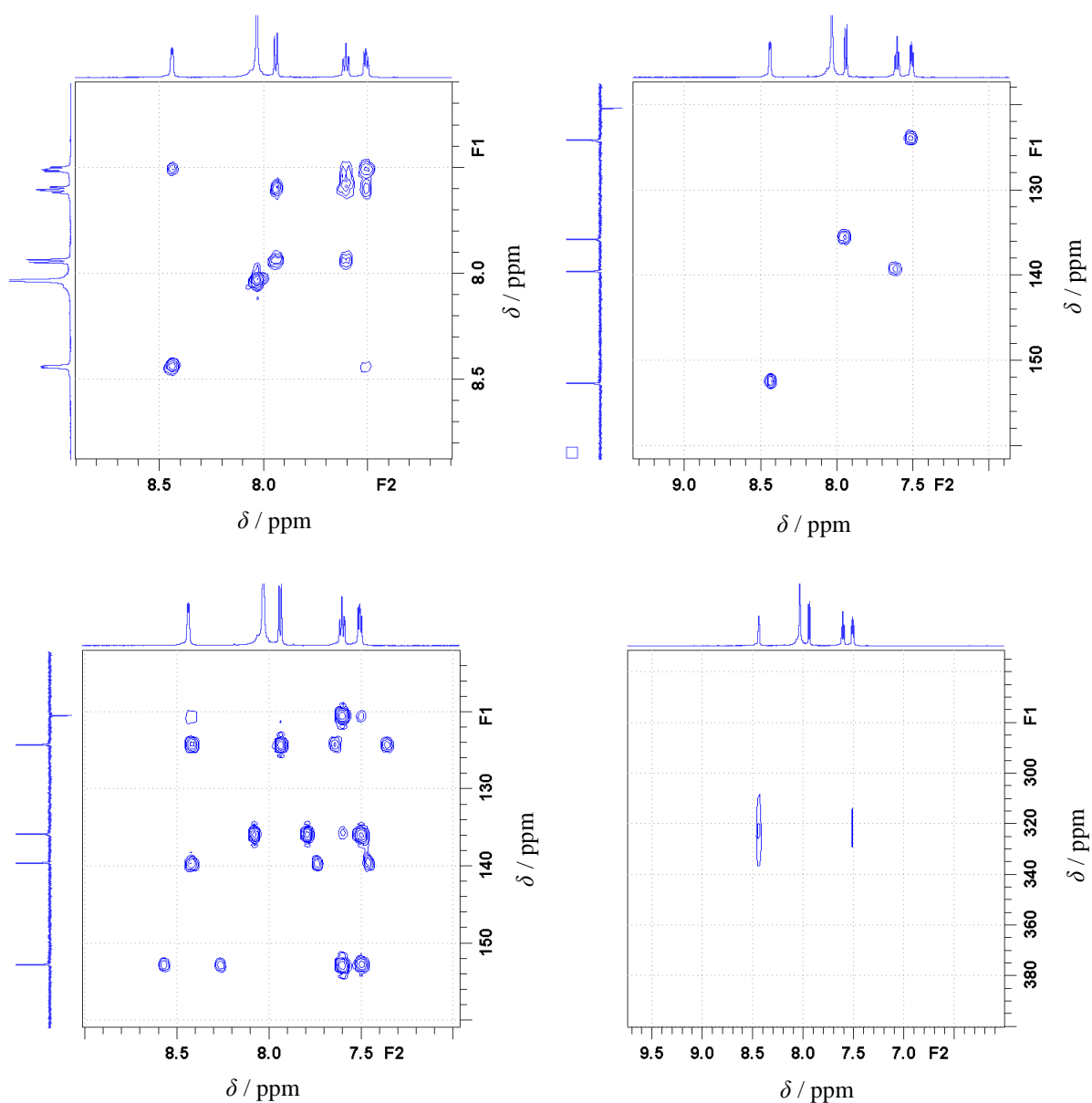
A



B

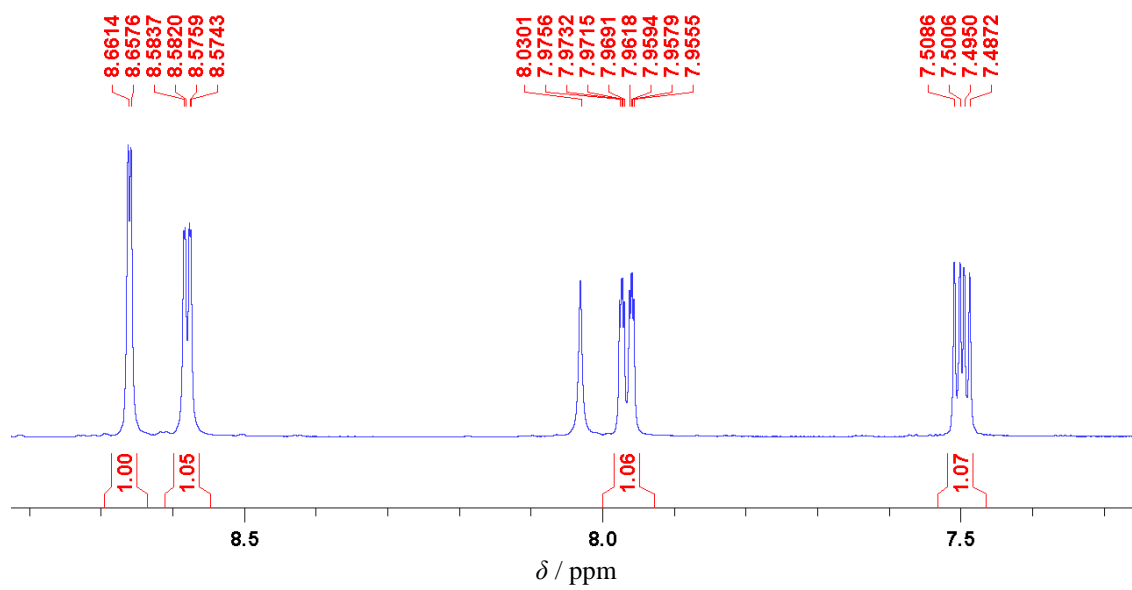


*Slika D40. A)  $^1\text{H}$ , B)  $^{13}\text{C}$  i C)  $^{109}\text{Ag}$  spektri spoja  $[\text{Ag}(\text{NO}_3)(2\text{-Ipy})_2]$ , (K3).*

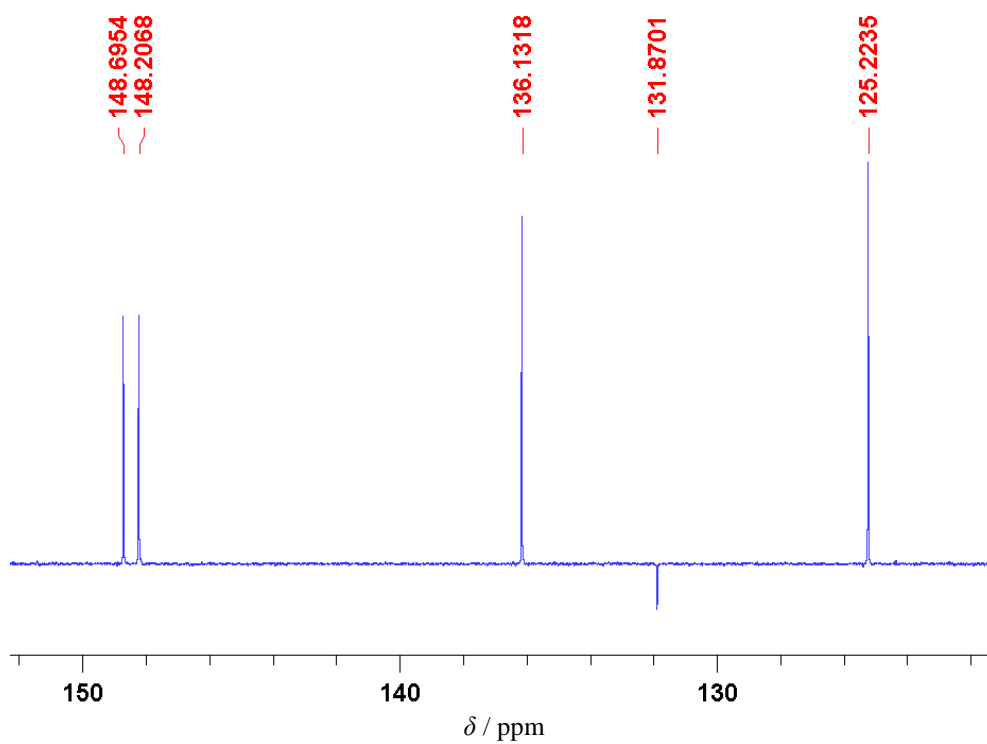


**Slika D41.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2\text{-Ipy})_2]$ , (K3).



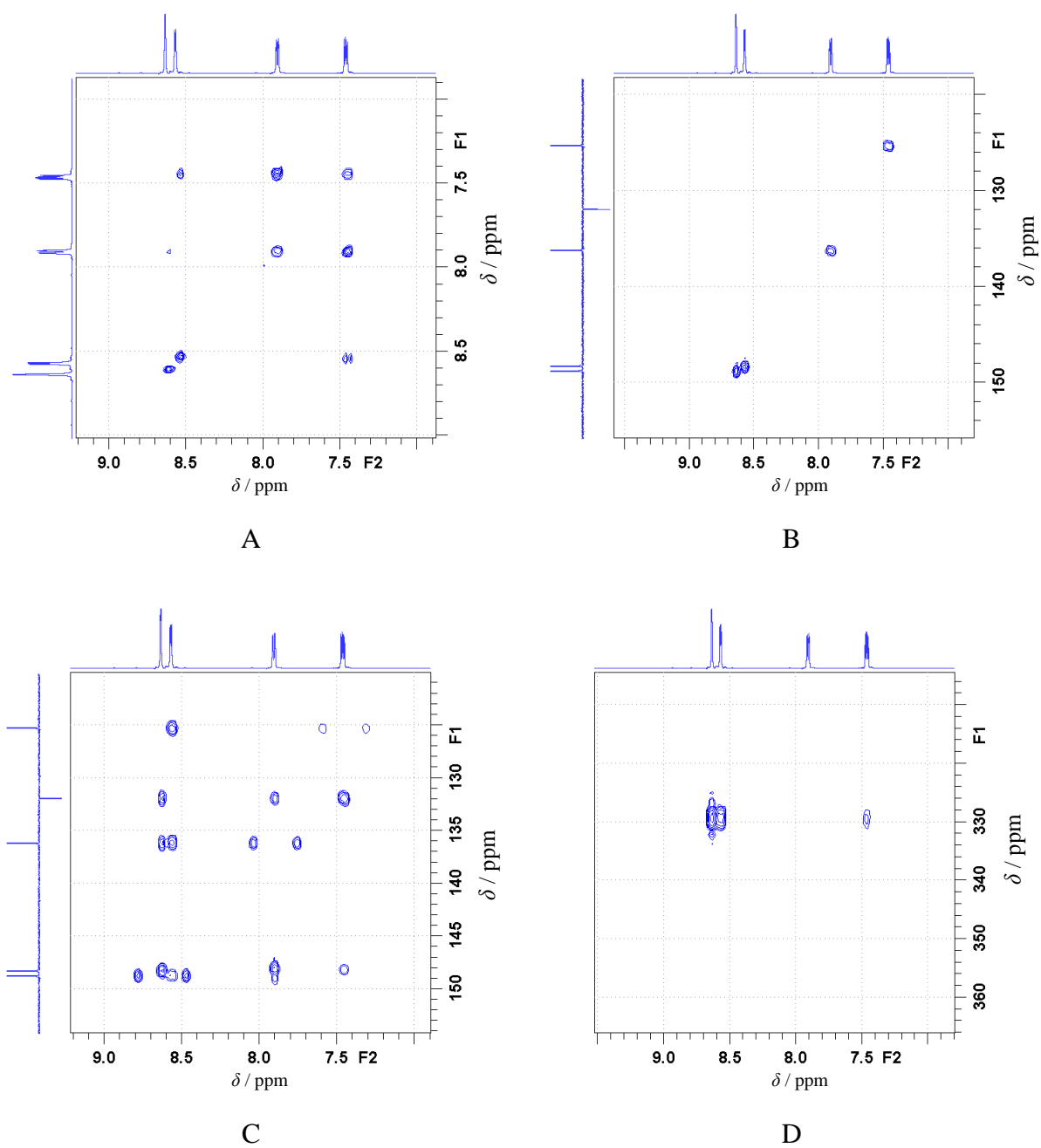


A

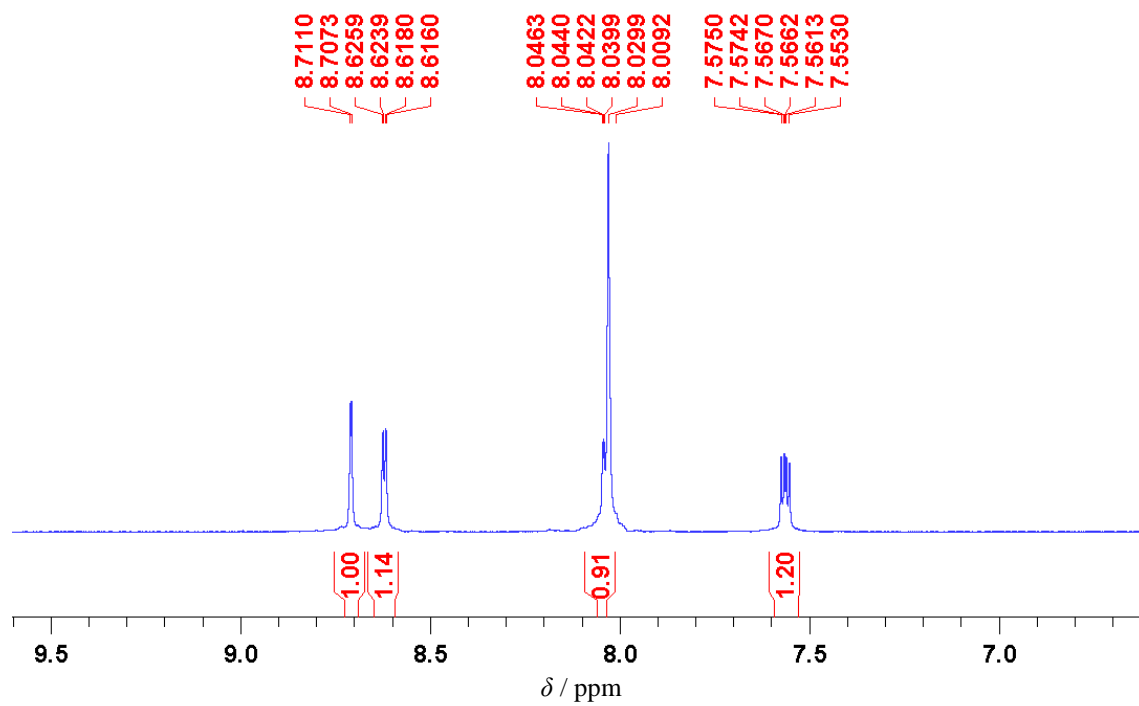


B

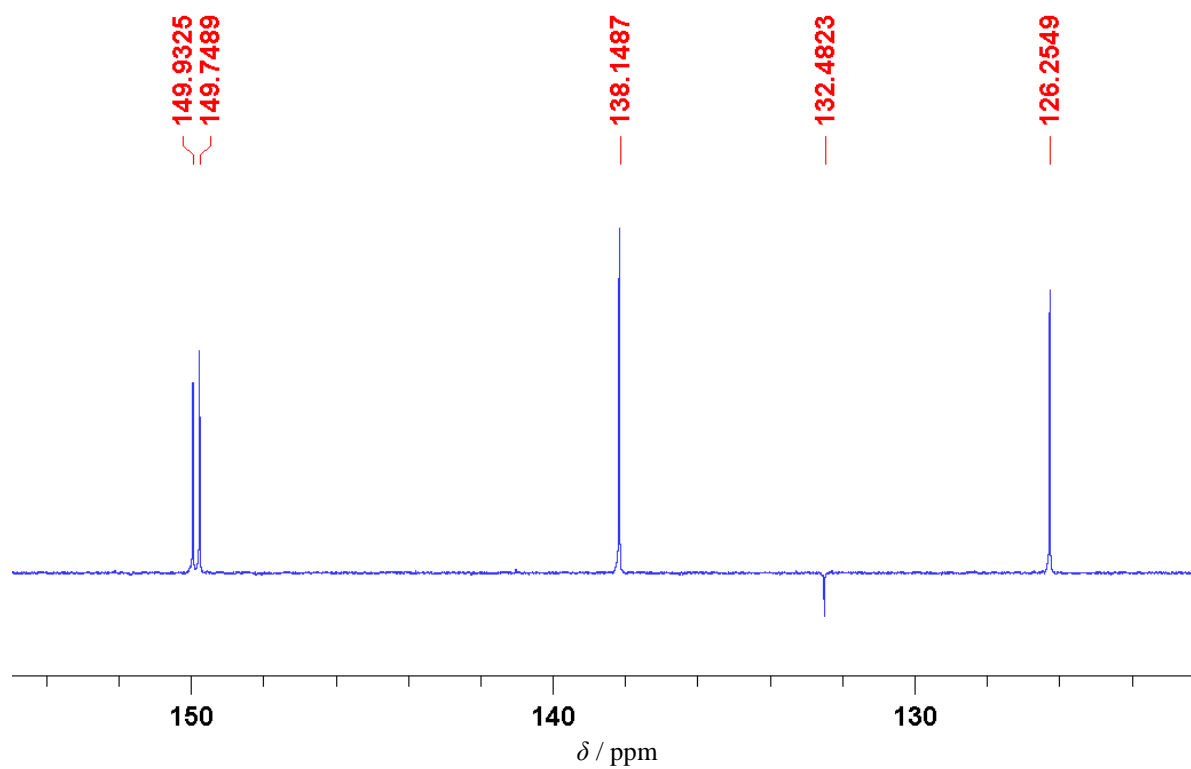
Slika D42. A) <sup>1</sup>H i B) <sup>13</sup>C spektri spoja 3-Clpy, (L4).



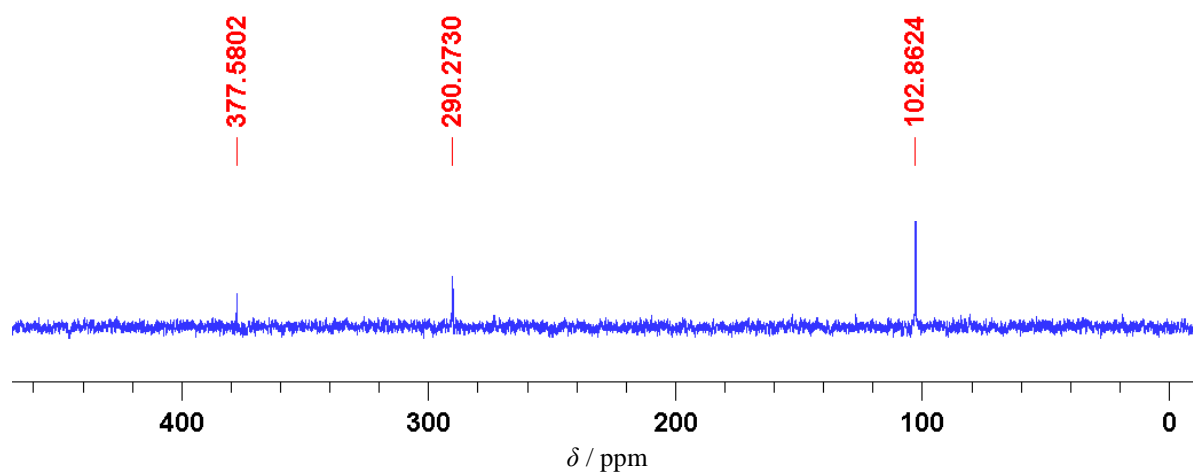
**Slika D43.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR liganda 3-Clpy, (**L4**).



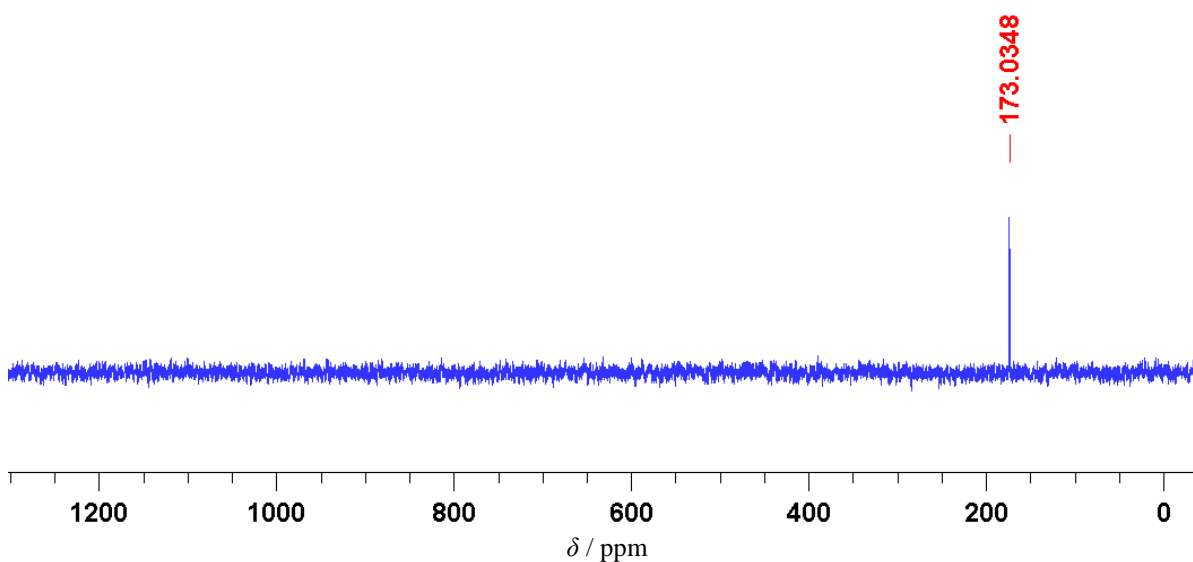
A



B

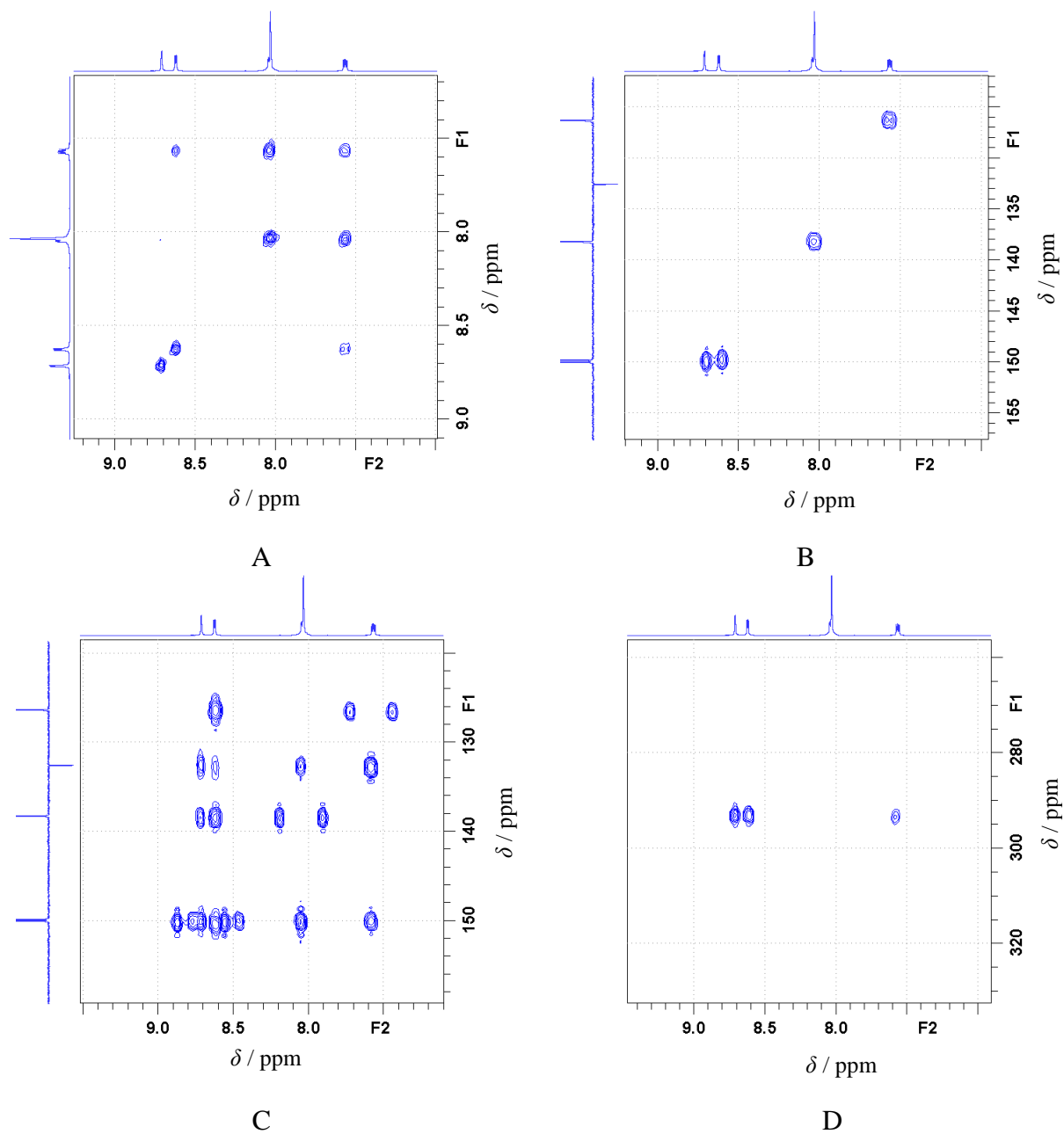


C

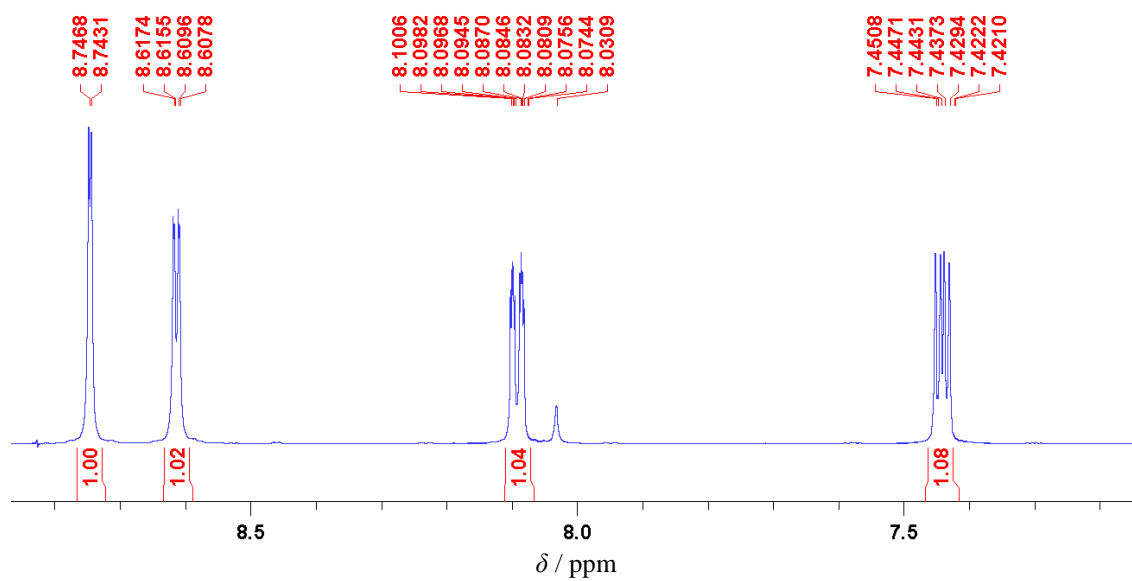


D

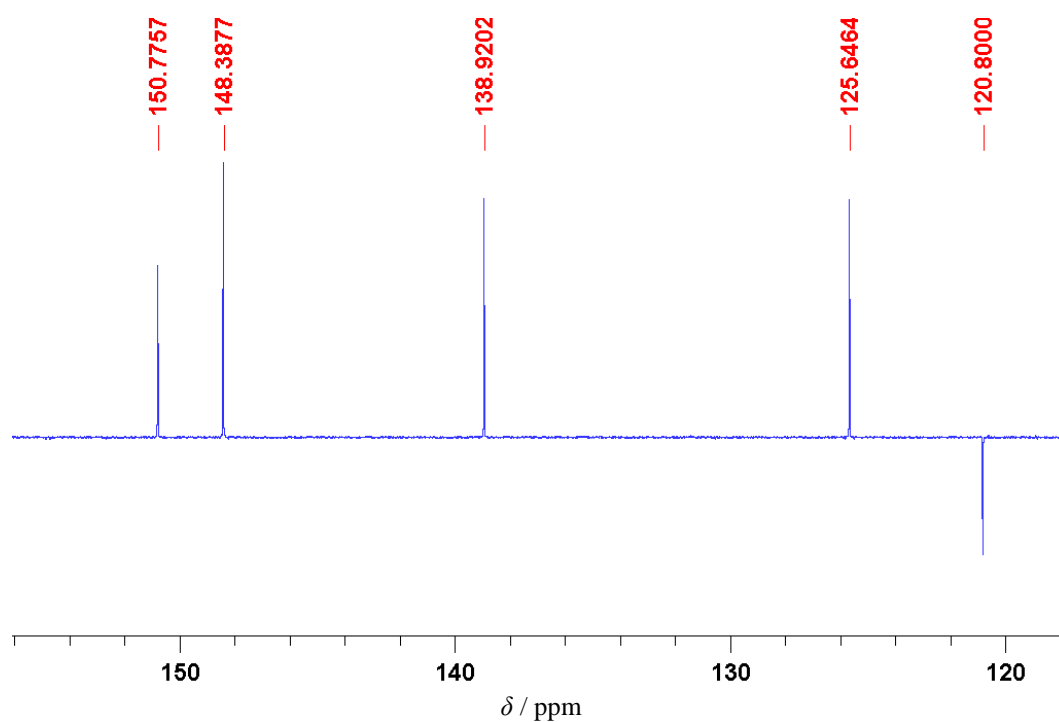
*Slika D44.* A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(3\text{-Clpy})_2]$ , (K4).



**Slika D45.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(3\text{-Clpy})_2]$ , (**K4**).

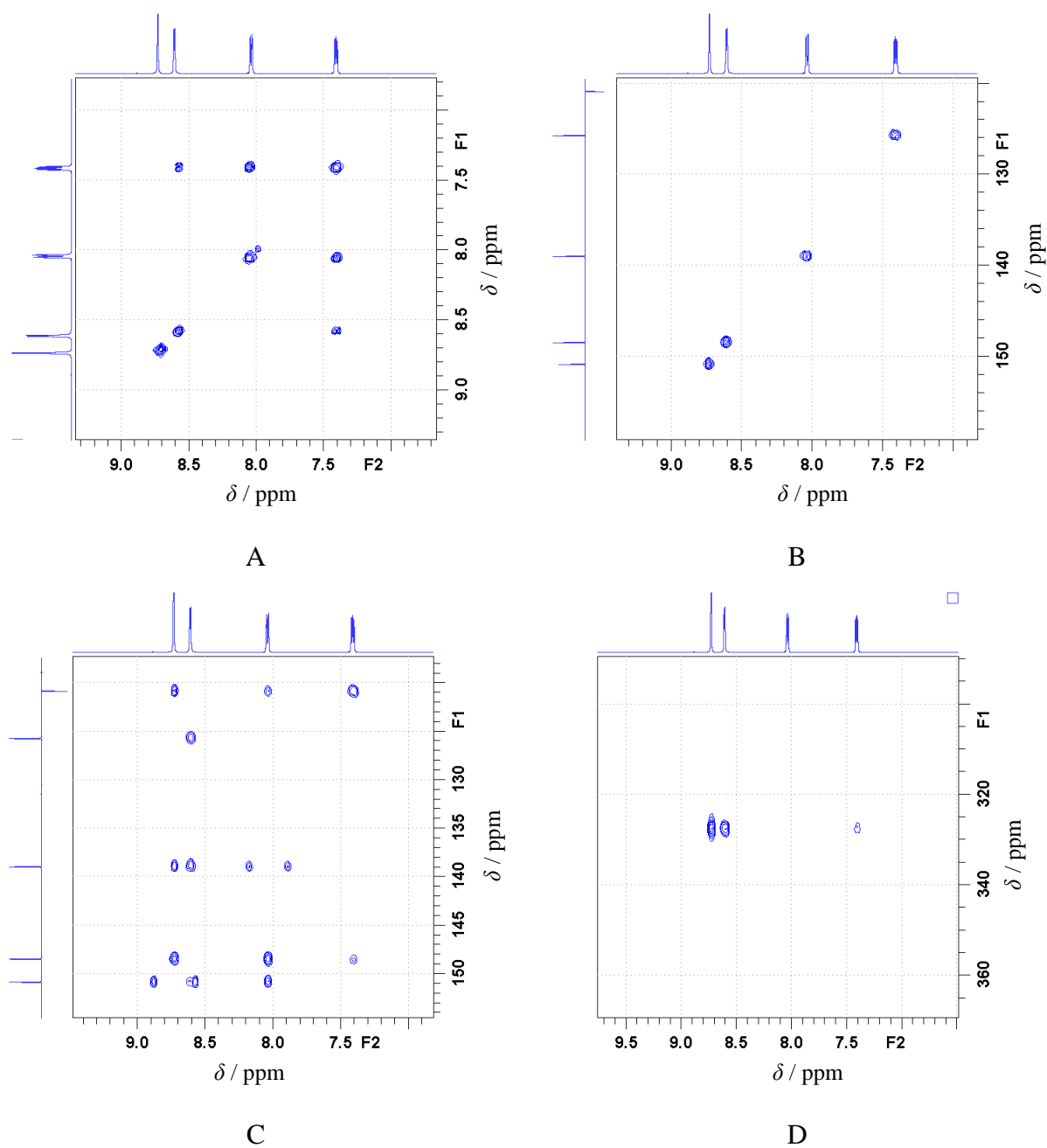


A

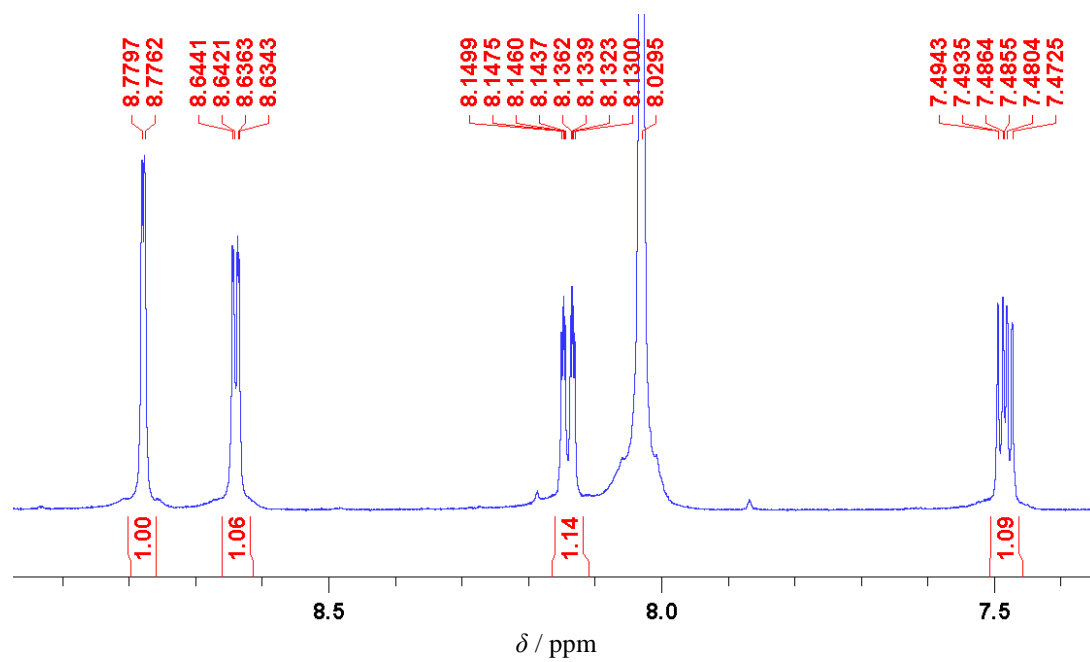


B

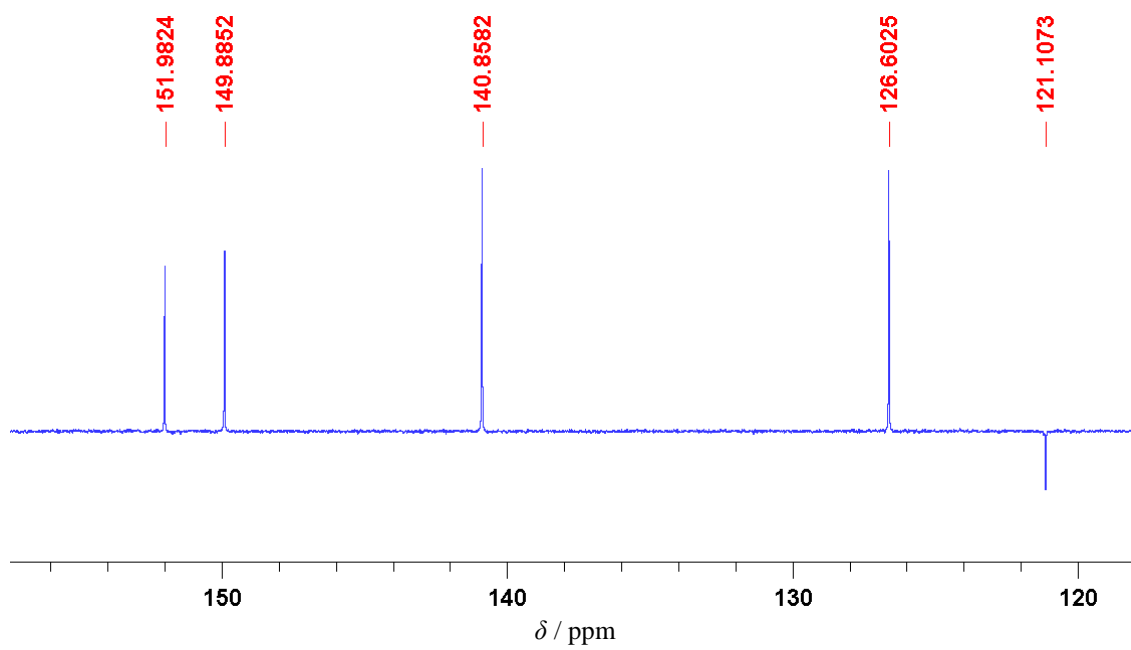
Slika D46. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 3-Brpy, (L5).



**Slika D47.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 3-Brpy, (L5).

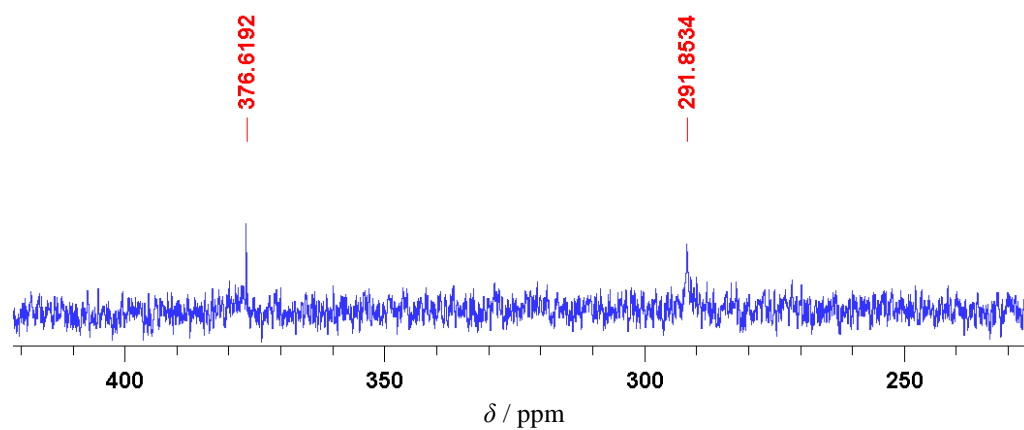


A

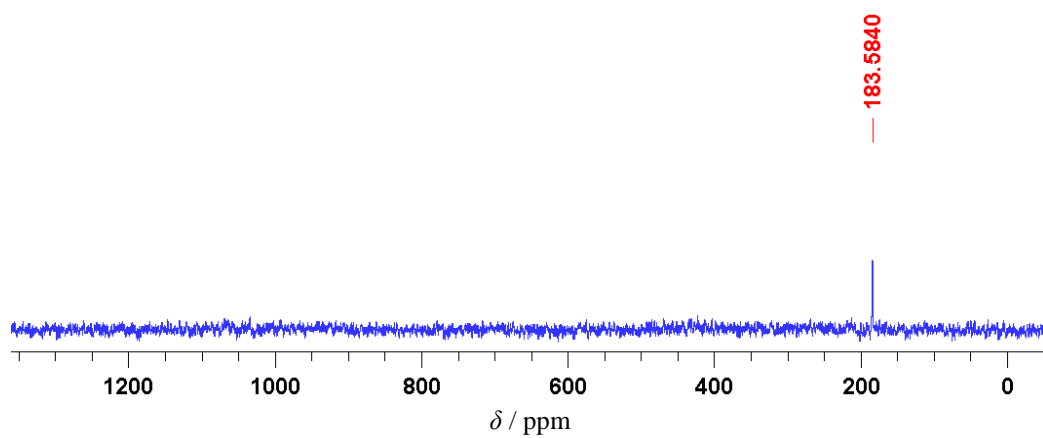


B



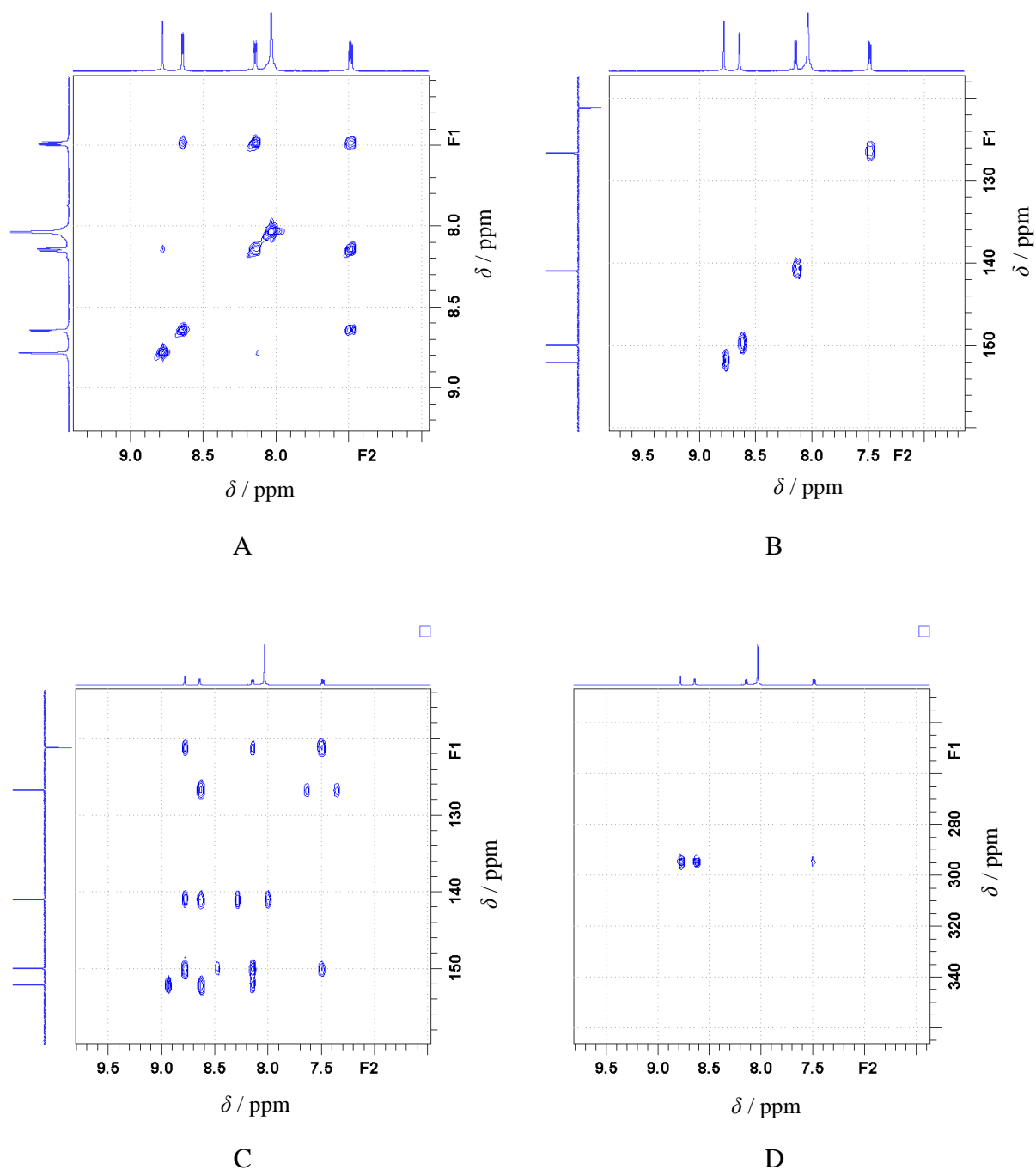


C

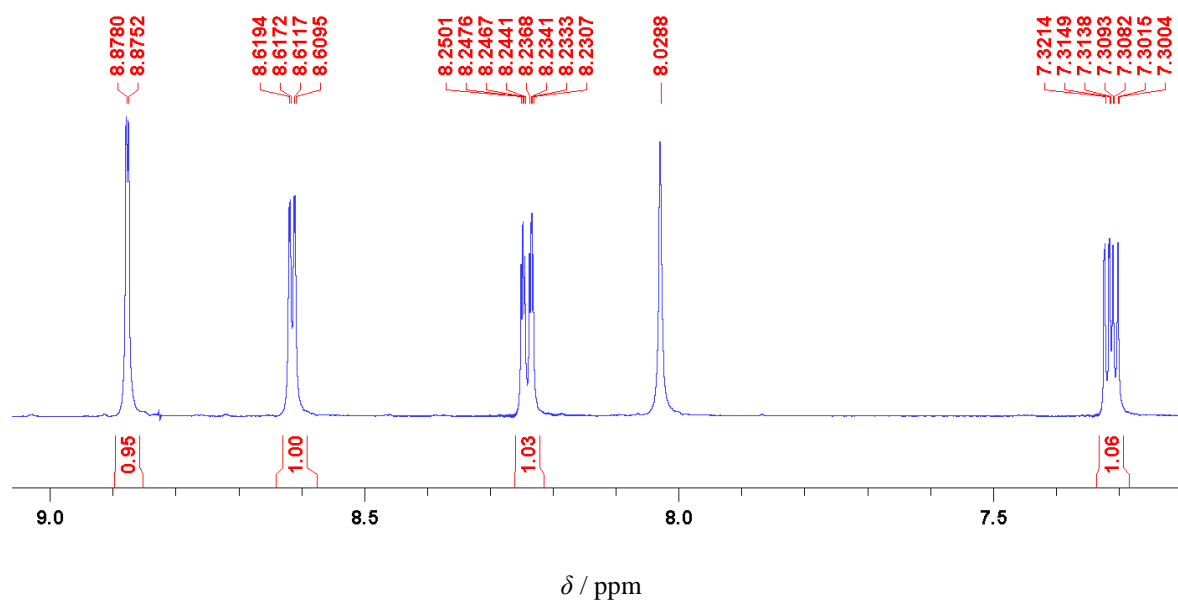


D

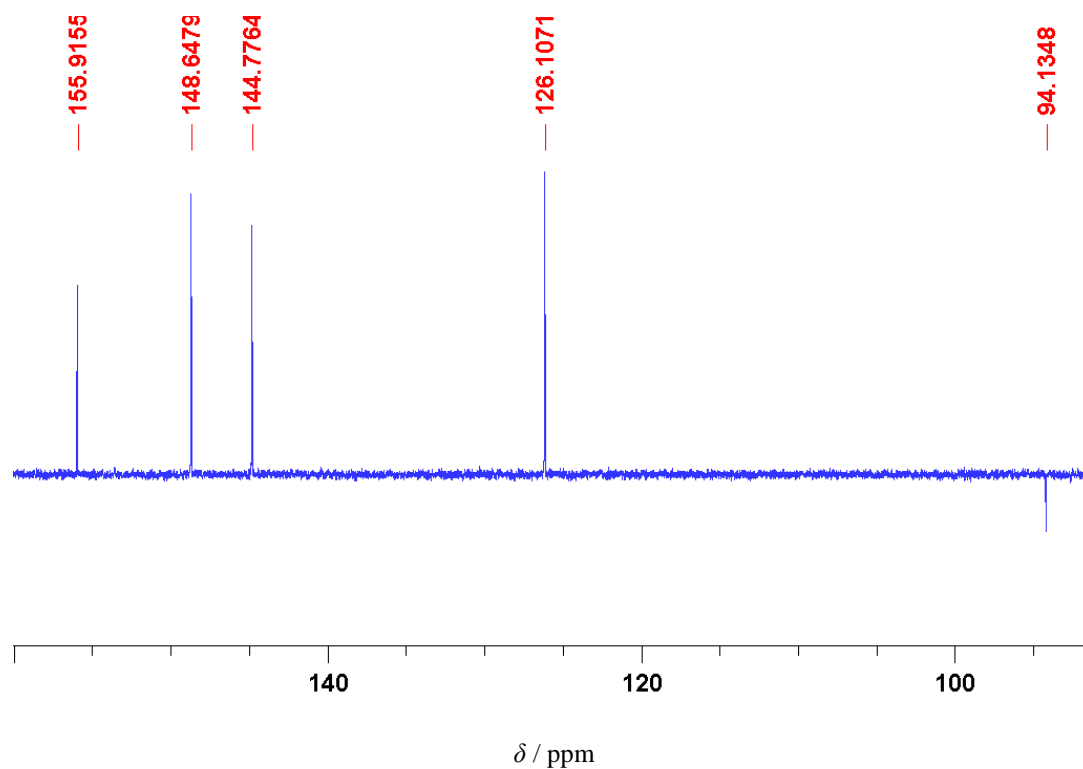
*Slika D48.* A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri spoja  $[\text{Ag}(\text{NO}_3)(3\text{-Brpy})_2]$ , (K5).



**Slika D49.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(3\text{-Brpy})_2]$ , (K5).

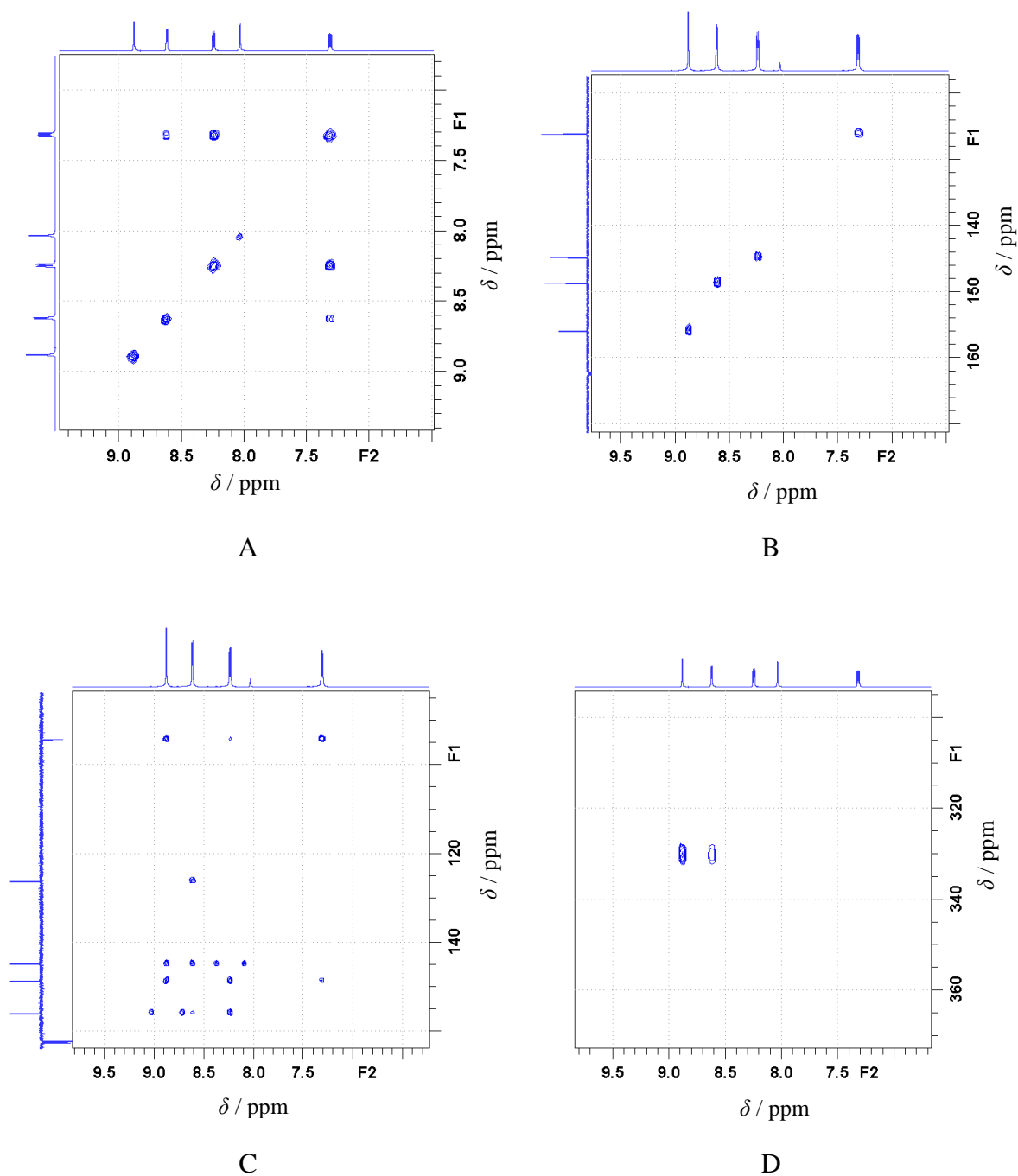


A

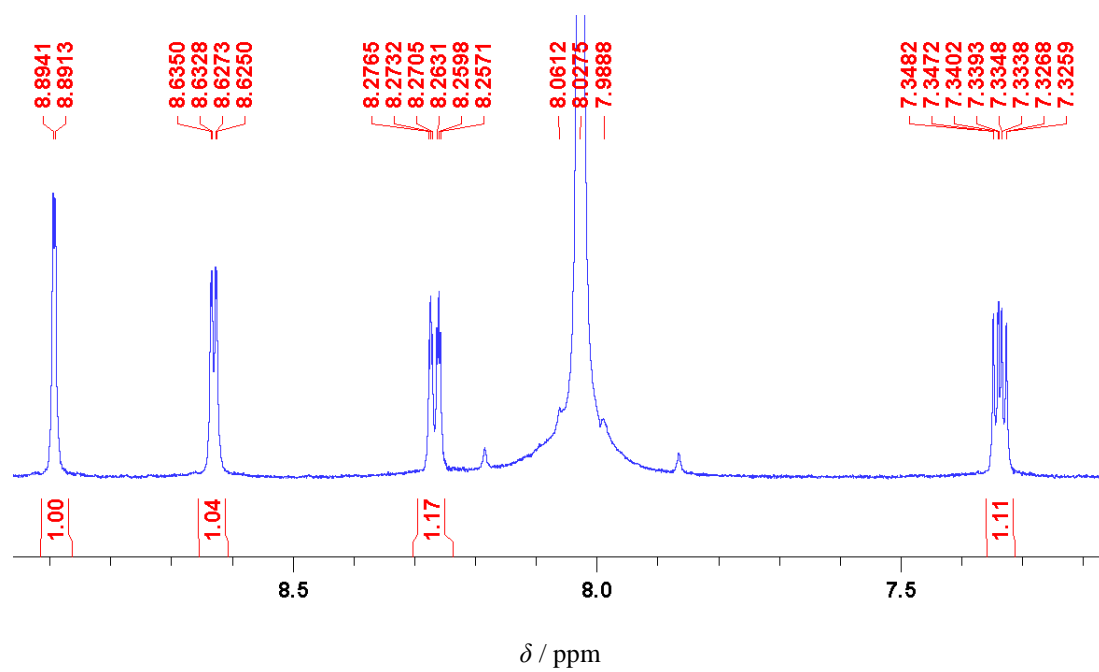


B

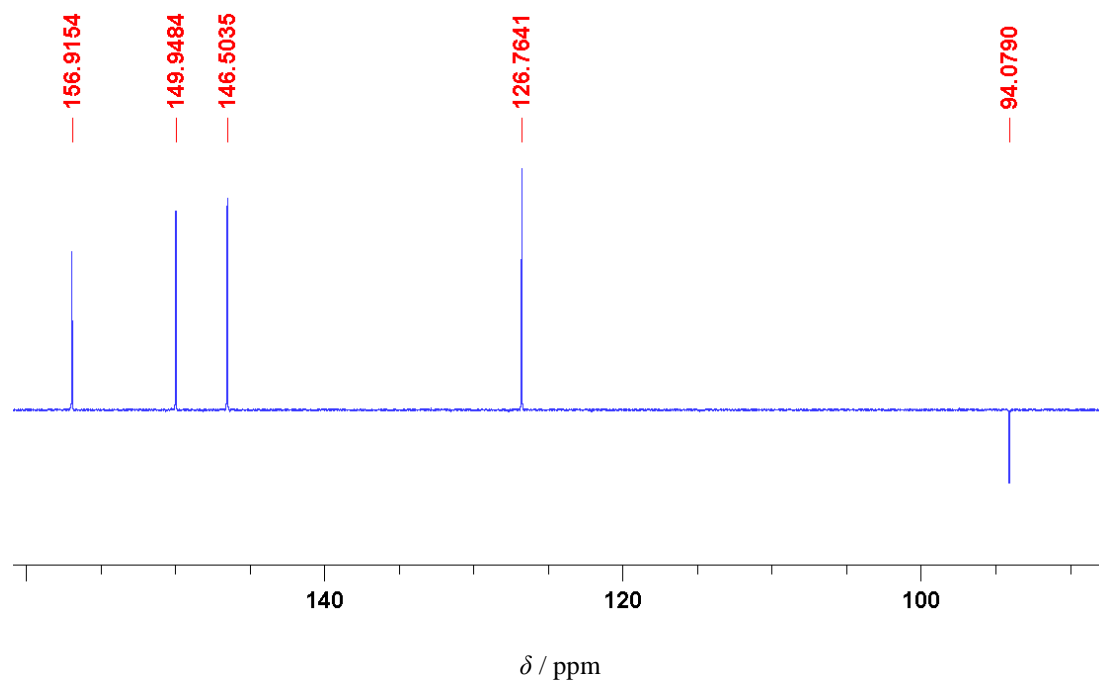
Slika D50. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 3-Ipy, (L6).



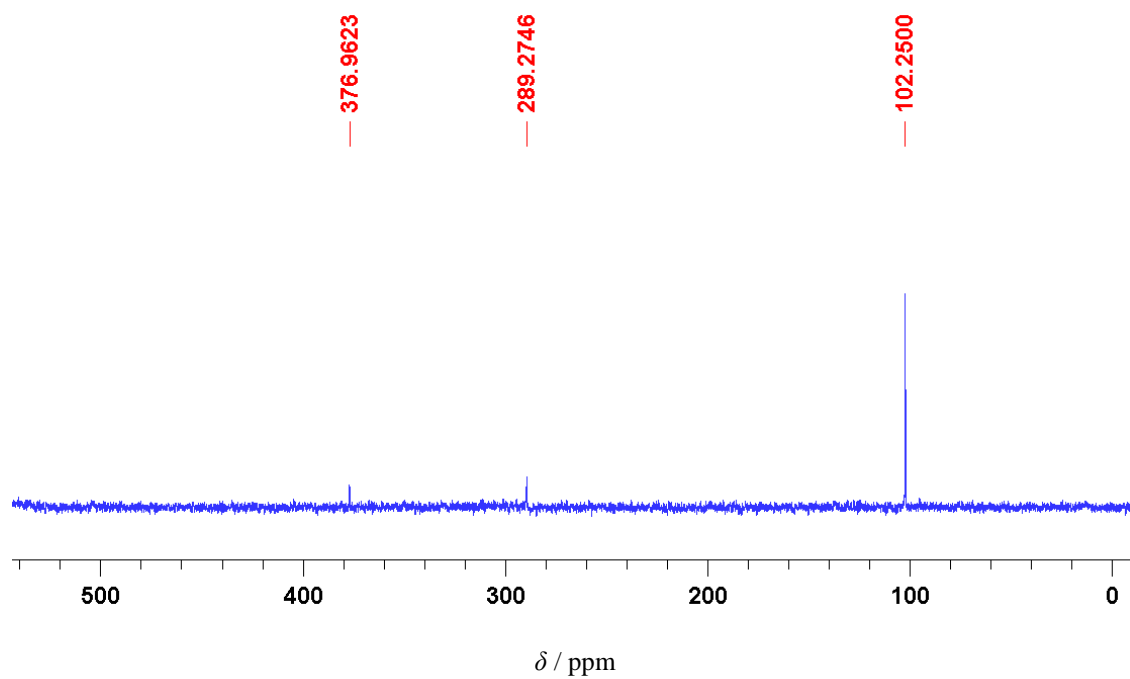
**Slika D51.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 3-Ipy, (L6).



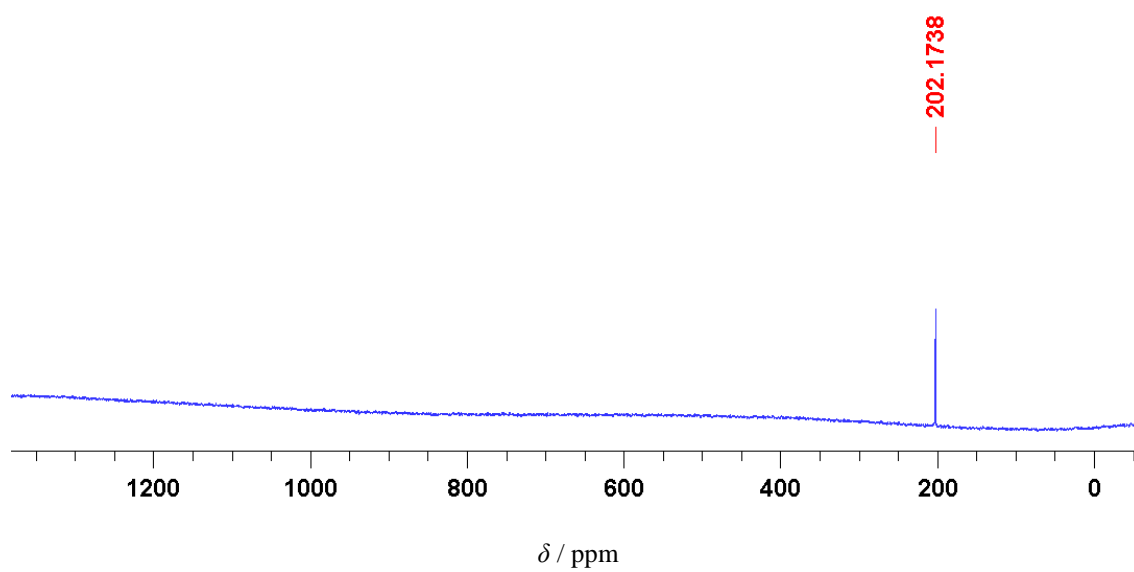
A



B

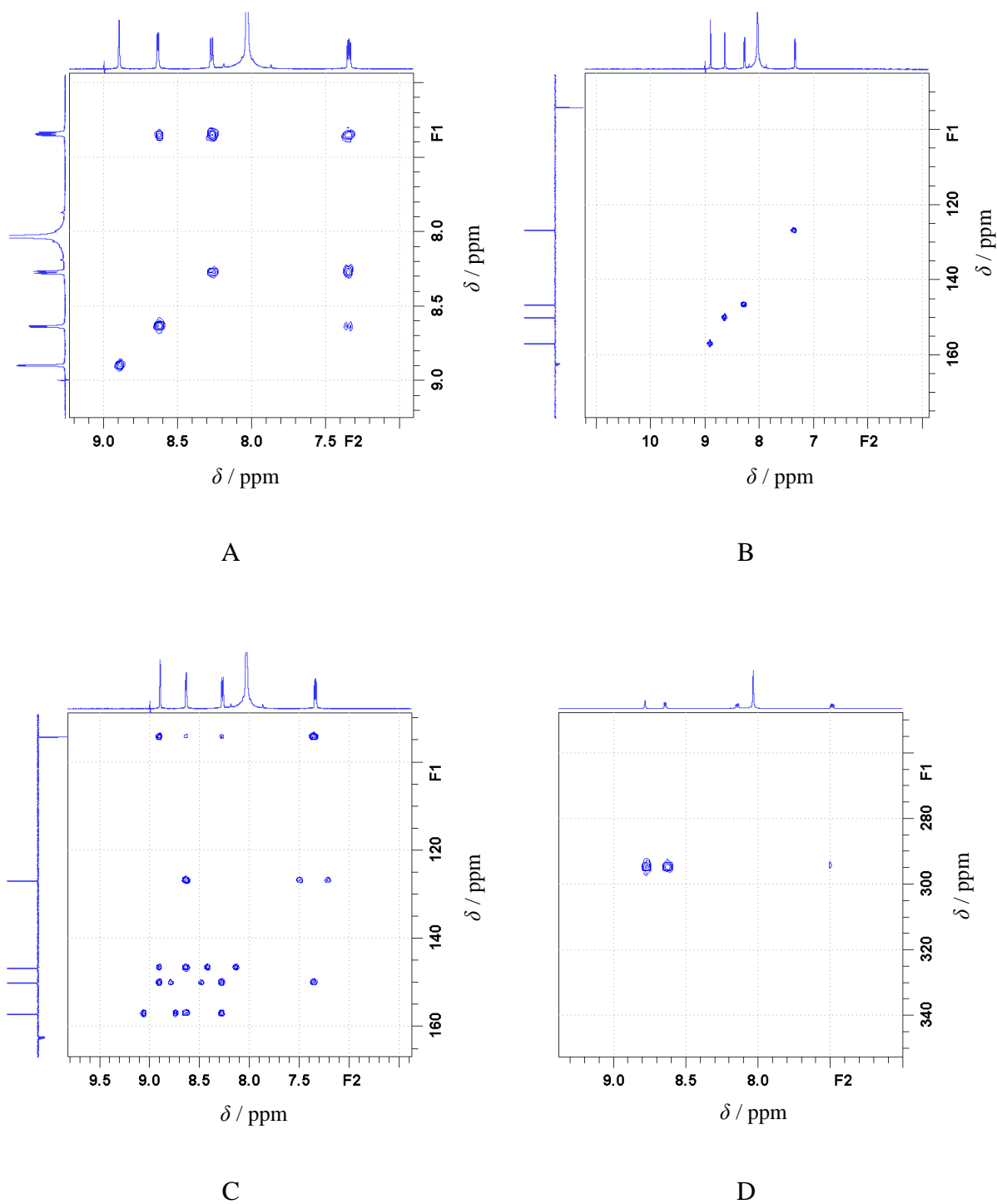


C

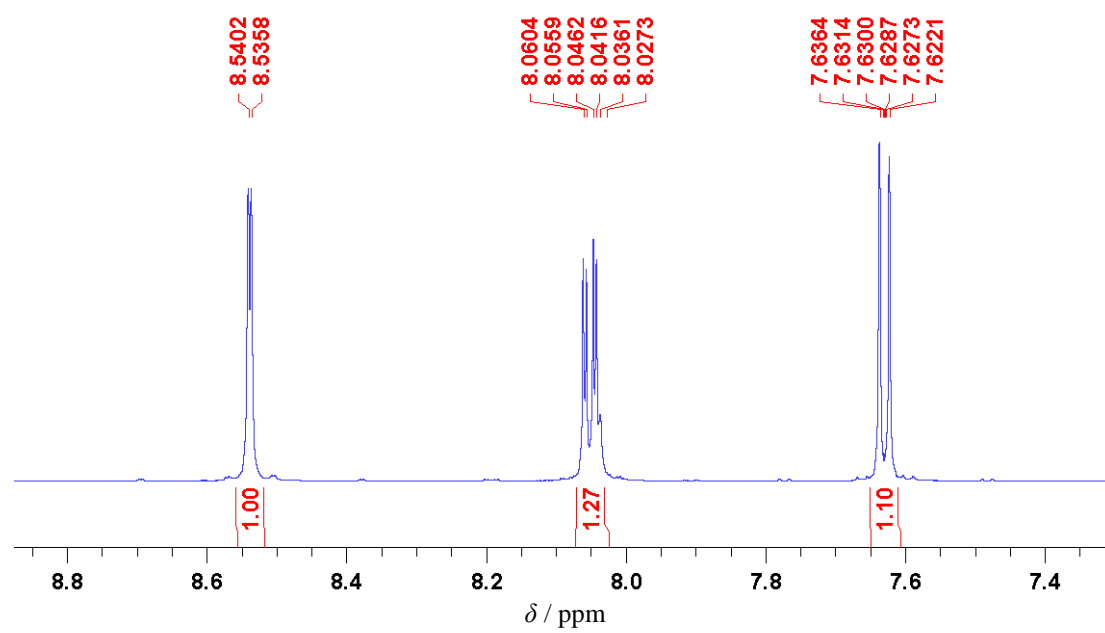


D

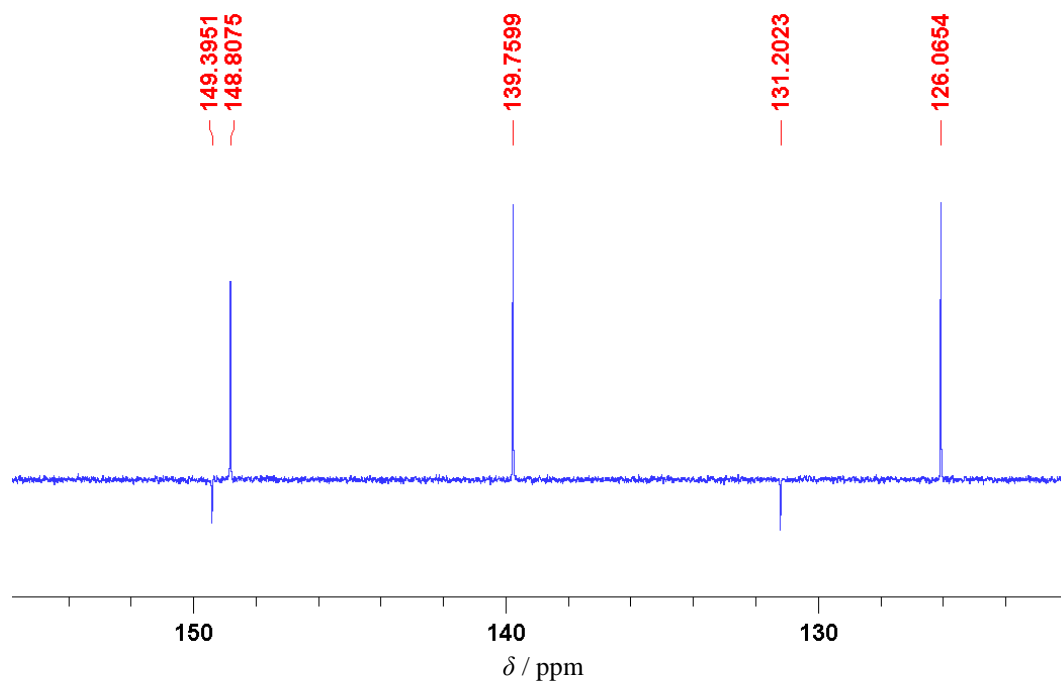
*Slika D52. A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(3\text{-Ipy})_2]$ , (K6).*



**Slika D53.** Uvećani prikaz A)  $^1H$ - $^1H$  COSY, B)  $^1H$ - $^{13}C$  HMQC, C)  $^1H$ - $^{13}C$  HMBC i D)  $^1H$ - $^{15}N$  HMBC spektara NMR kompleksa  $[Ag(NO_3)(3-Ipy)_2]$ , (**K6**).



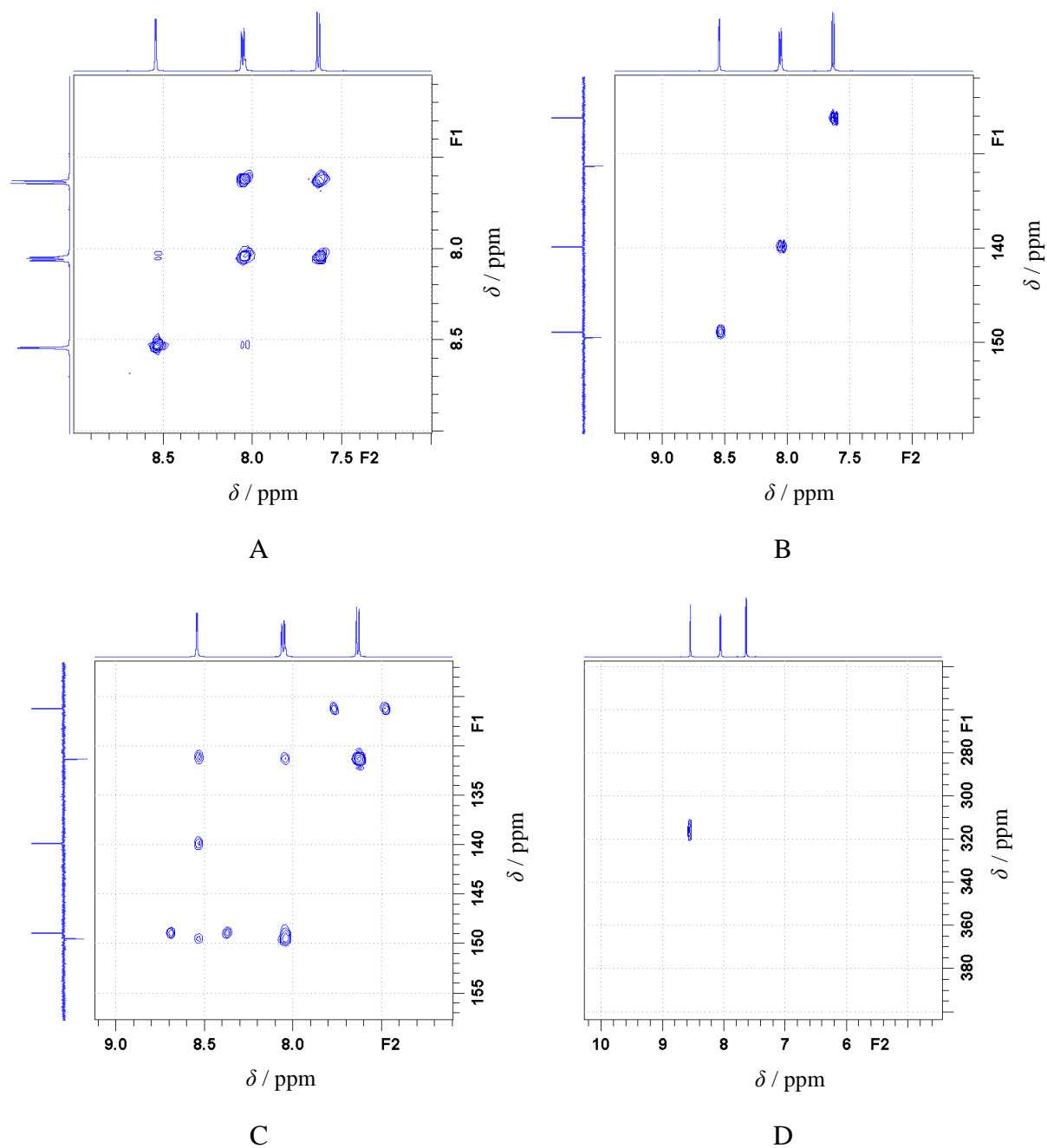
A



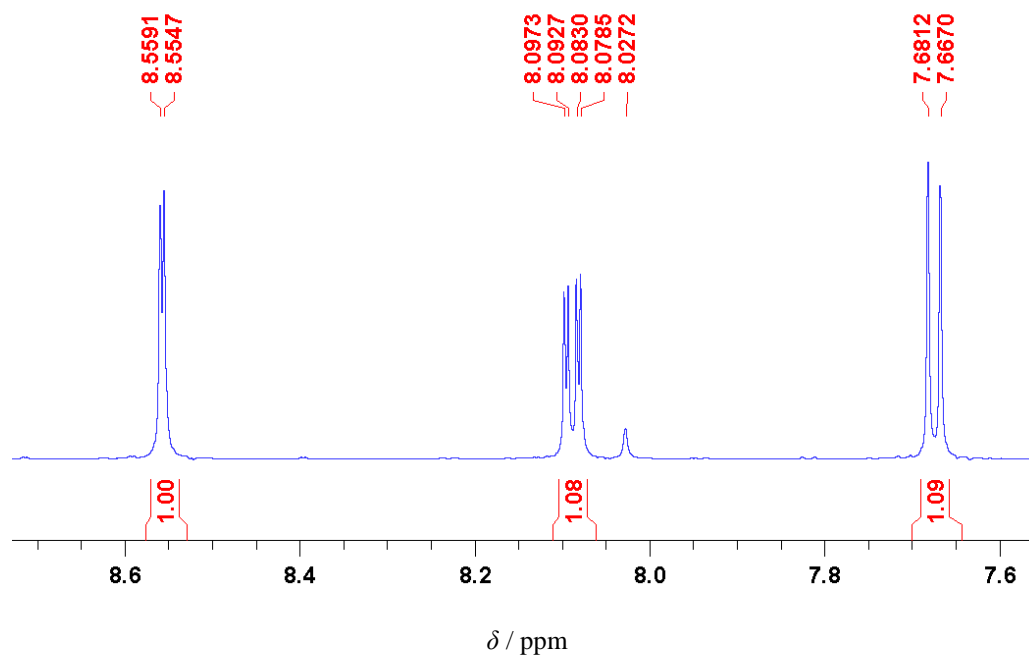
B

Slika D54. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 2,5-Cl<sub>2</sub>py, (L7).

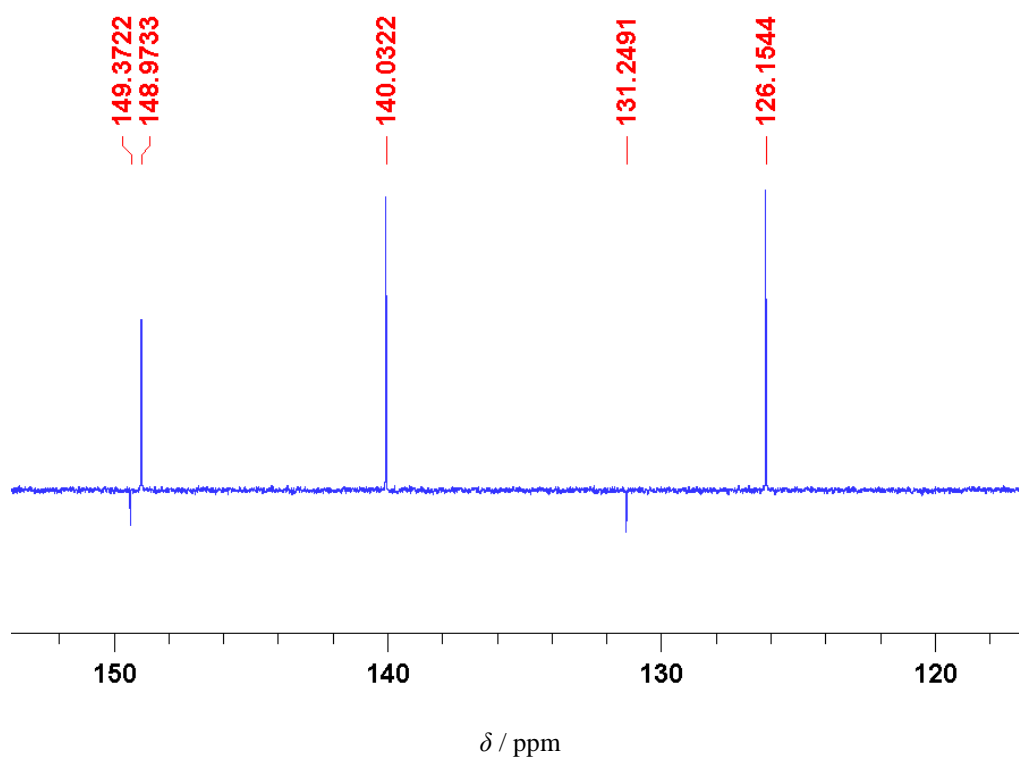




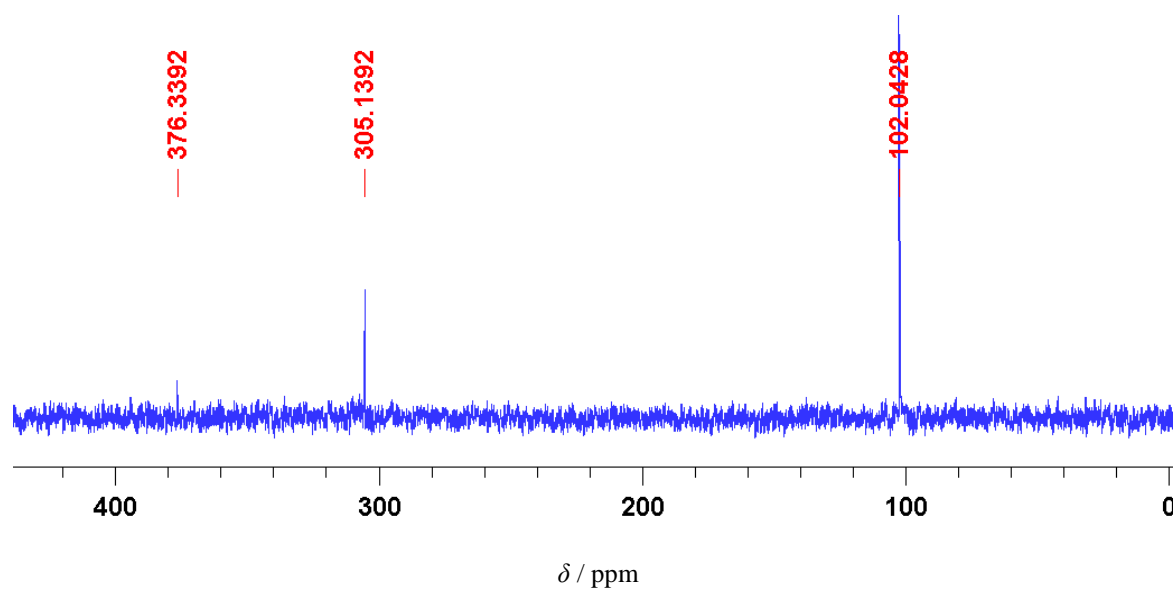
**Slika D55.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 2,5- $\text{Cl}_2\text{py}$ , (L7).



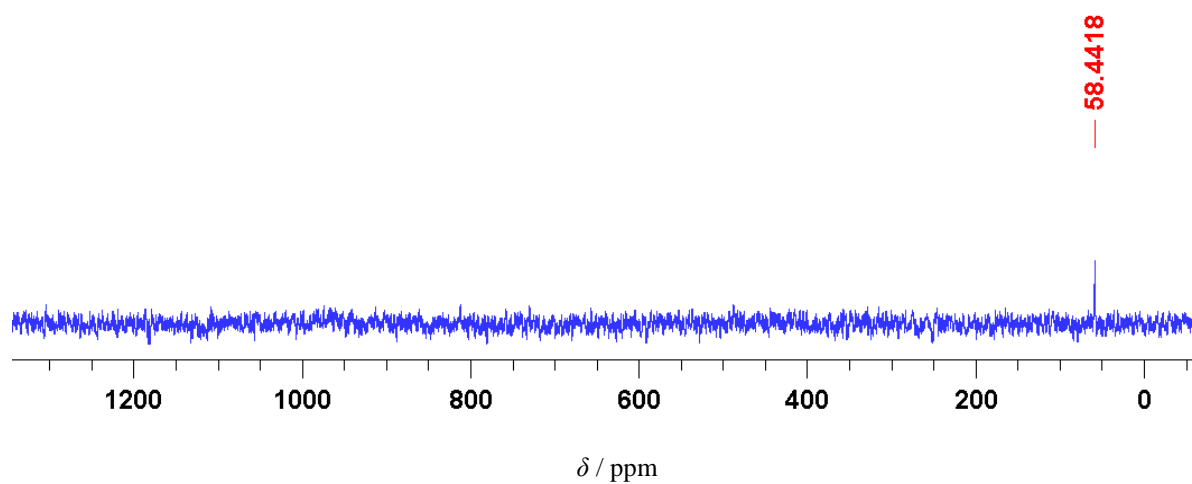
A



B

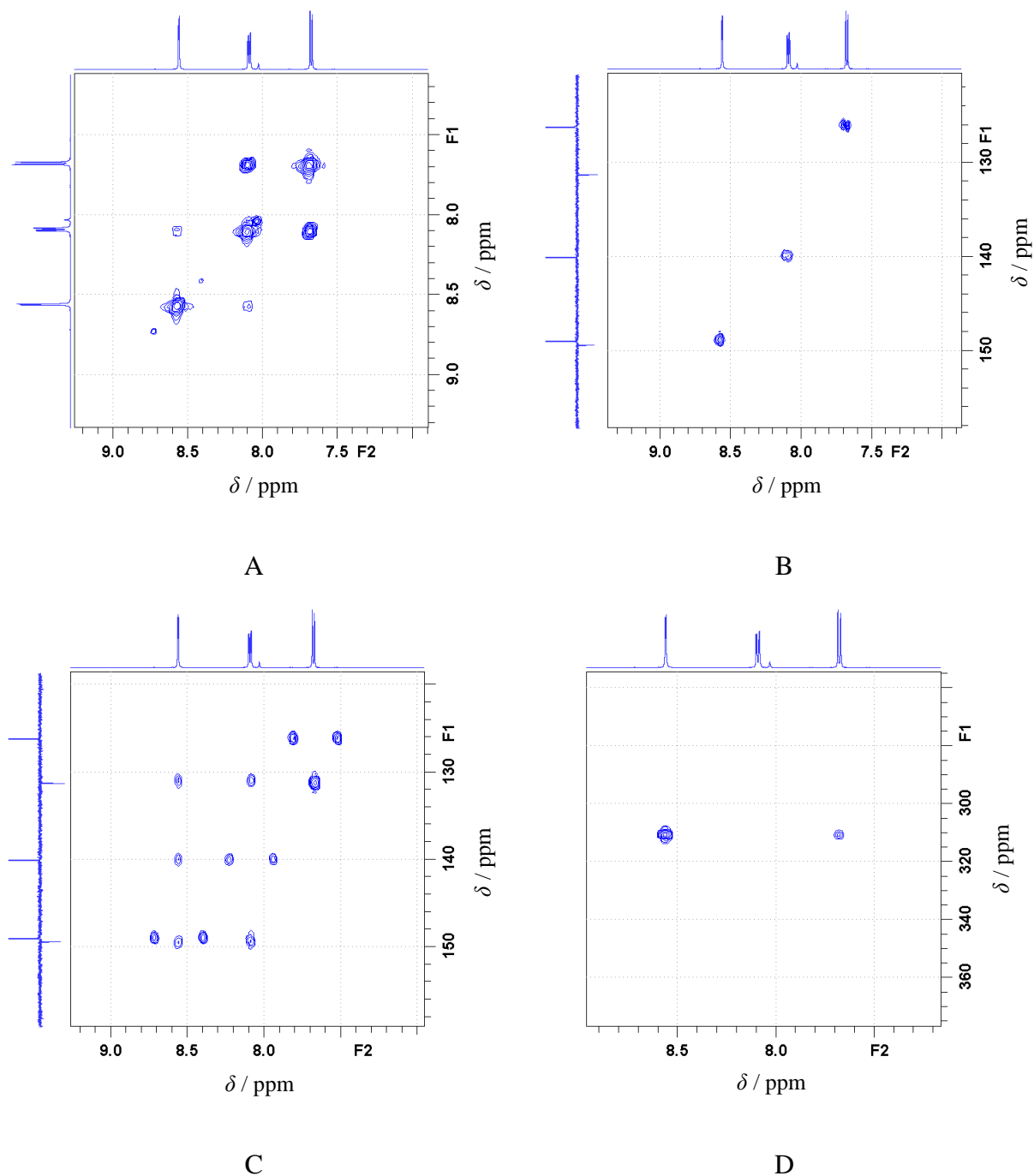


C

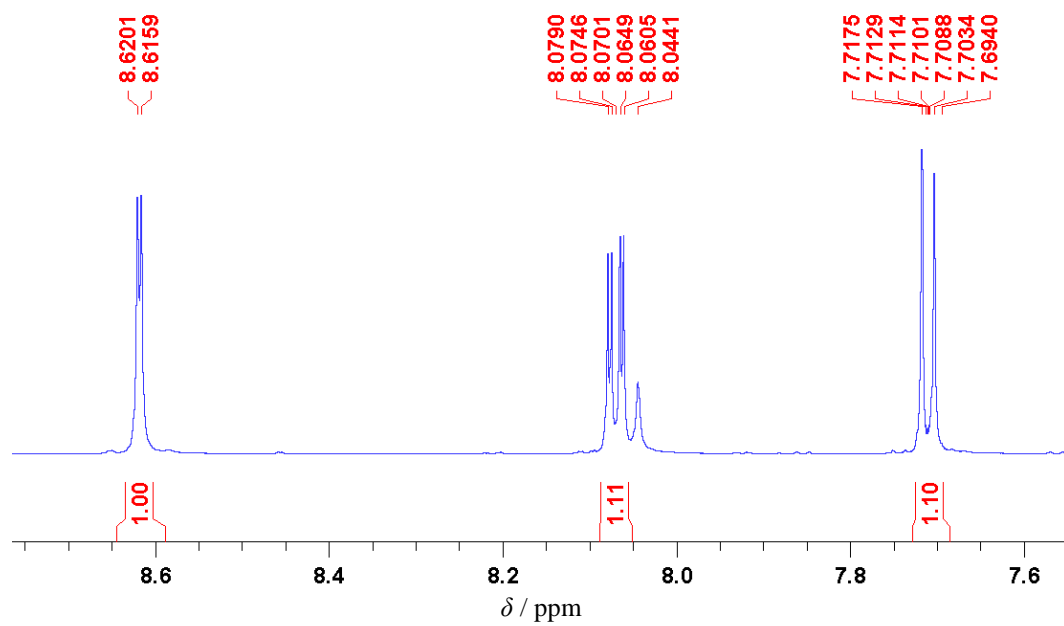


D

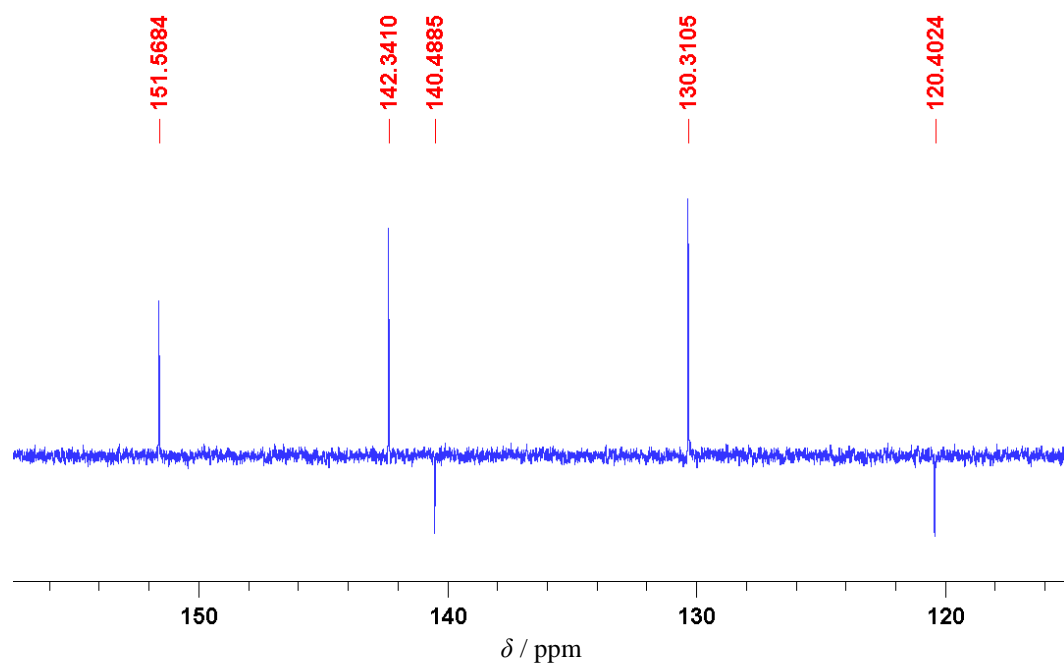
**Slika D56.** A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2,5\text{-Cl}_2\text{py})_2]$ , (K7).



**Slika D57.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2,5\text{-Cl}_2\text{py})_2]$ , (**K7**).

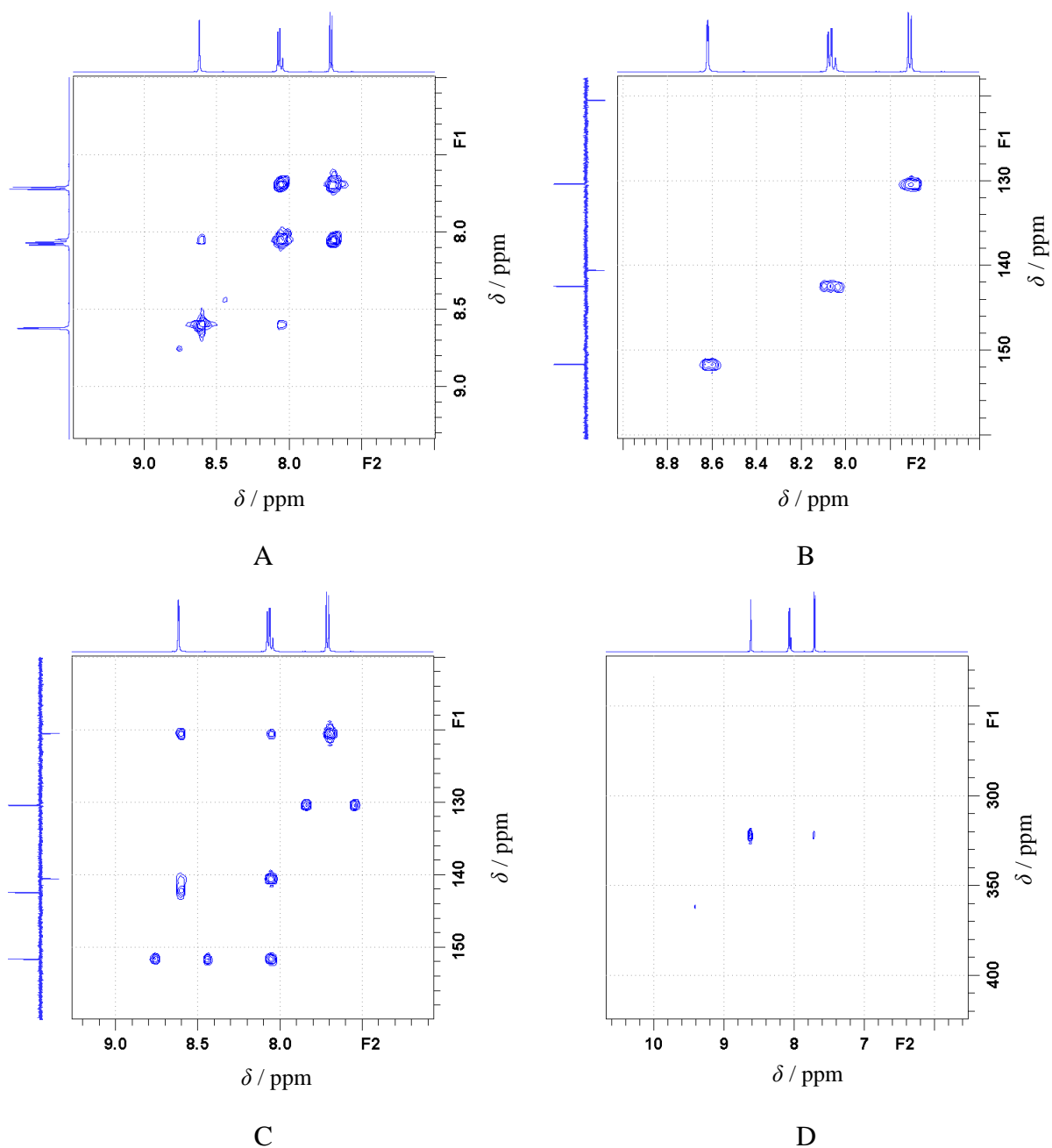


A

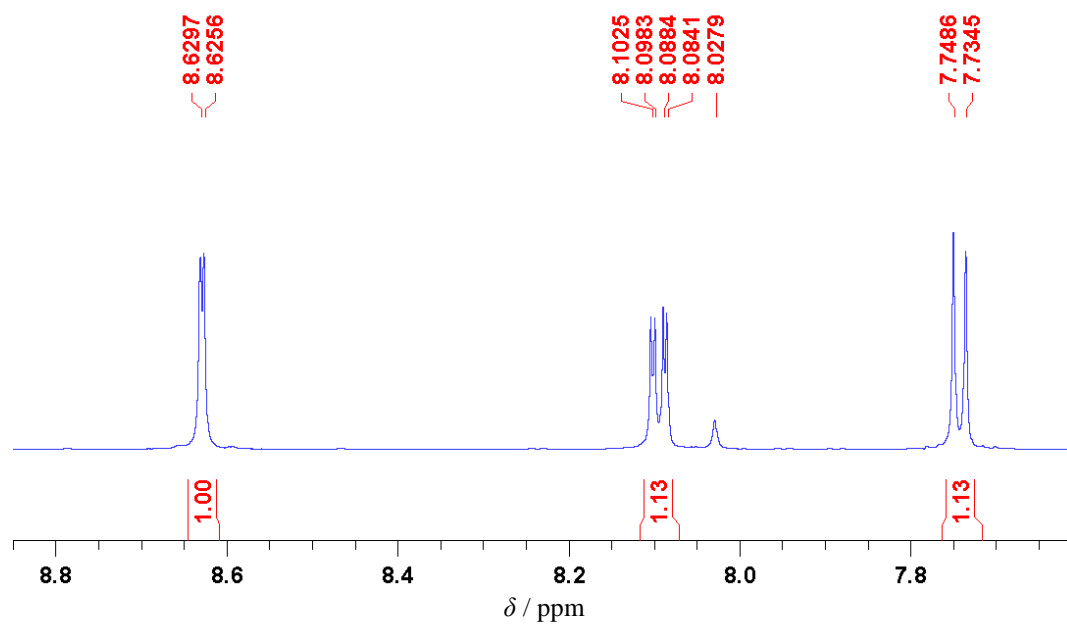


B

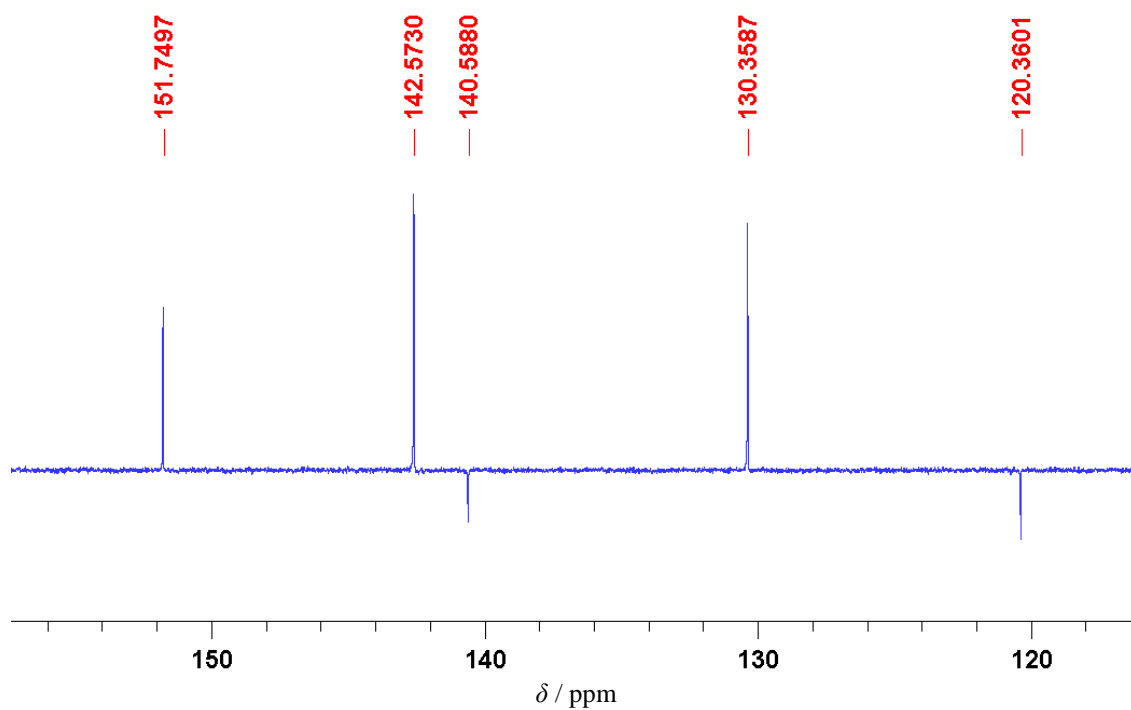
Slika D58. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 2,5- $\text{Br}_2\text{py}$ , (L8).



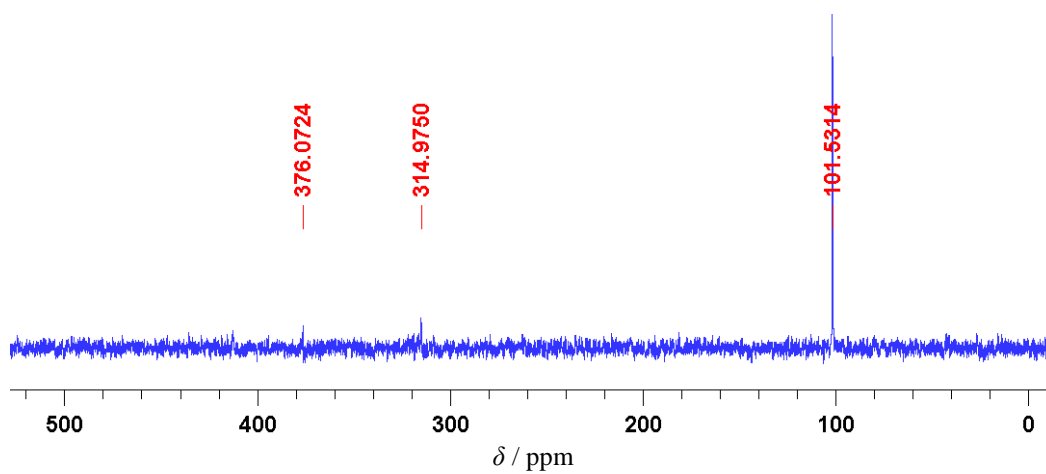
**Slika D59.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 2,5- $\text{Br}_2\text{py}$ , (**L8**).



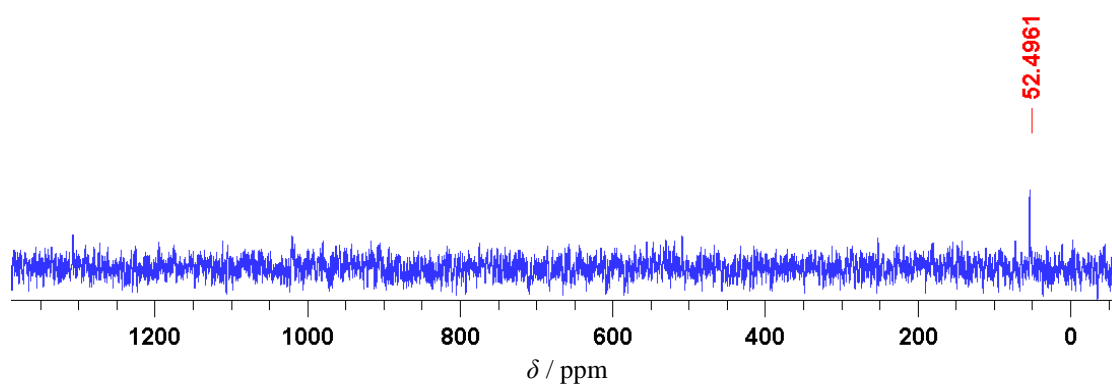
A



B



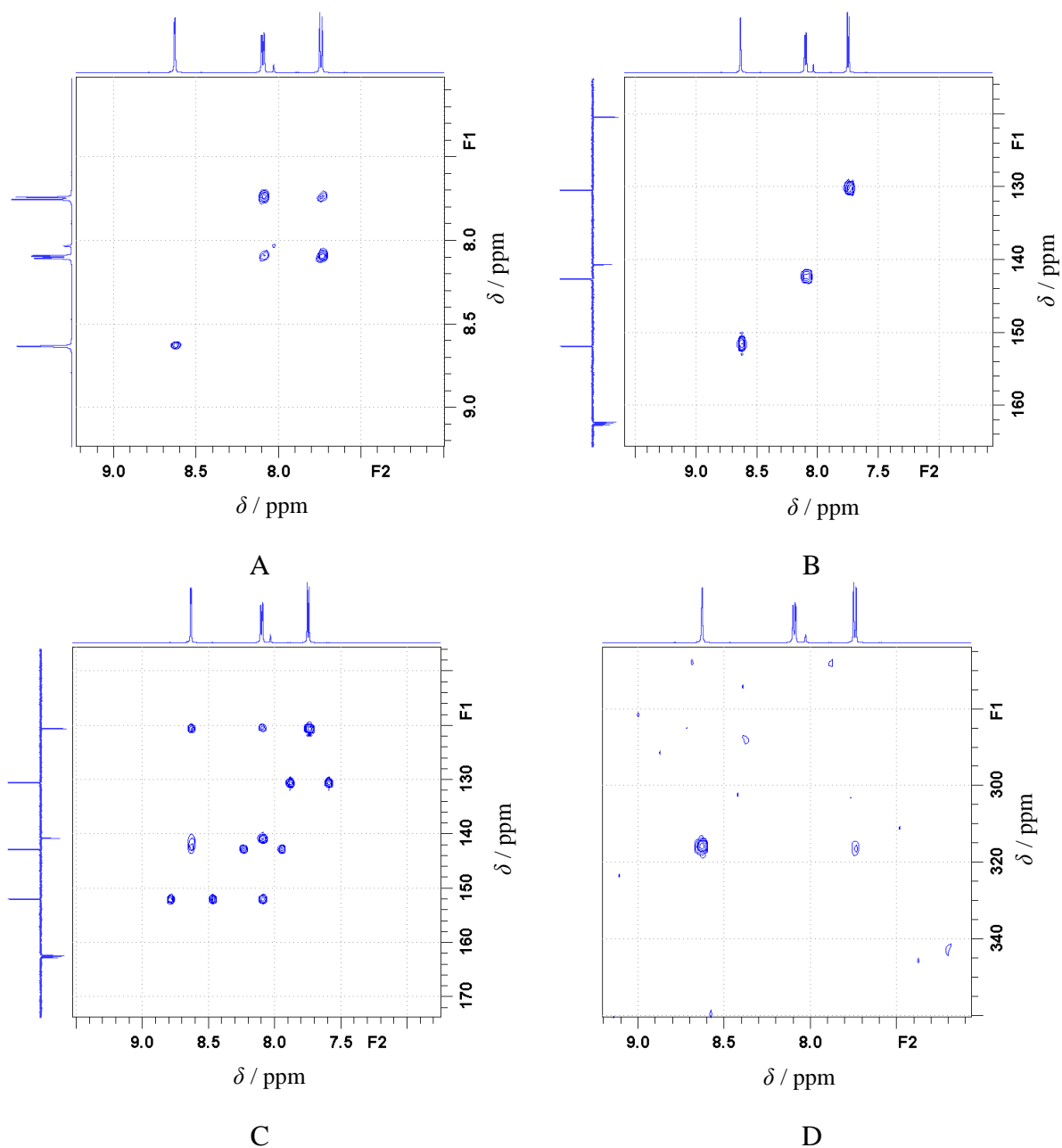
C



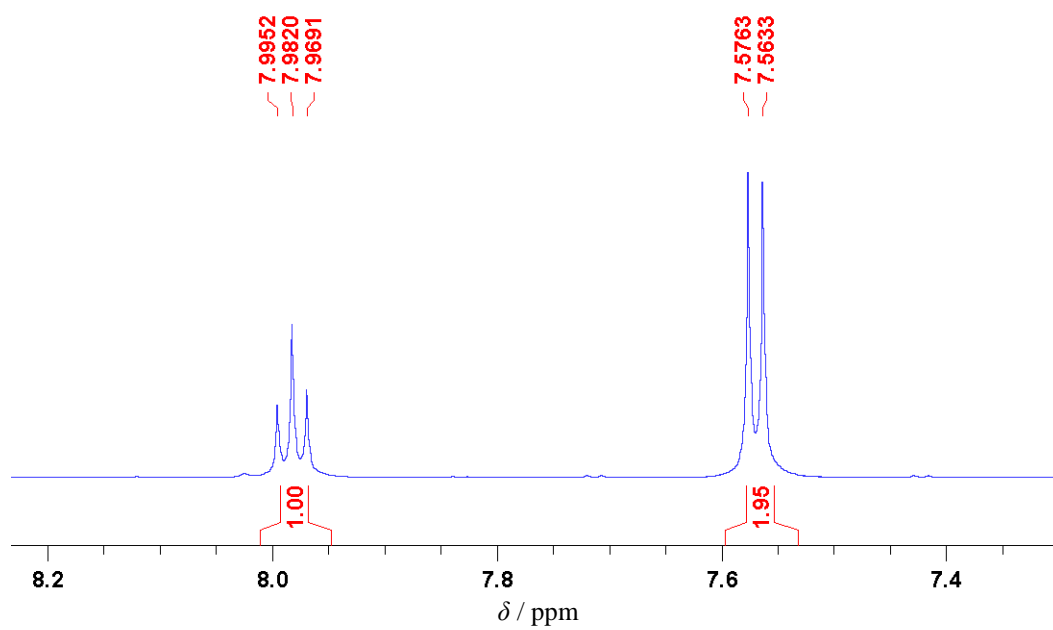
D

*Slika D60. A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(2,5\text{-Br}_2\text{py})_2]$ , (K8).*

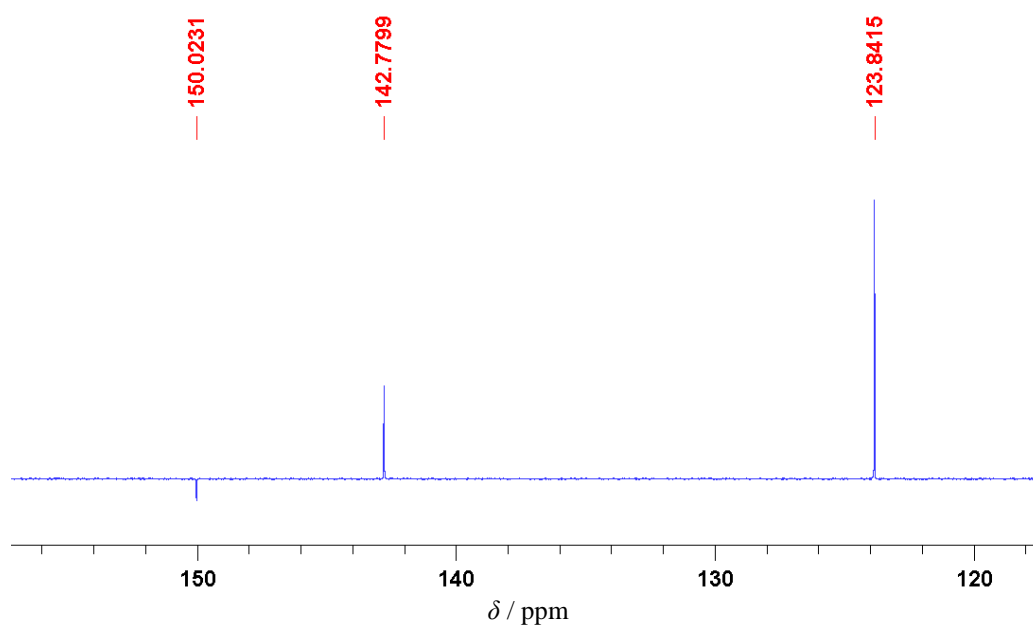




**Slika D61.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2,5\text{-Br}_2\text{py})_2]$ , (**K8**).

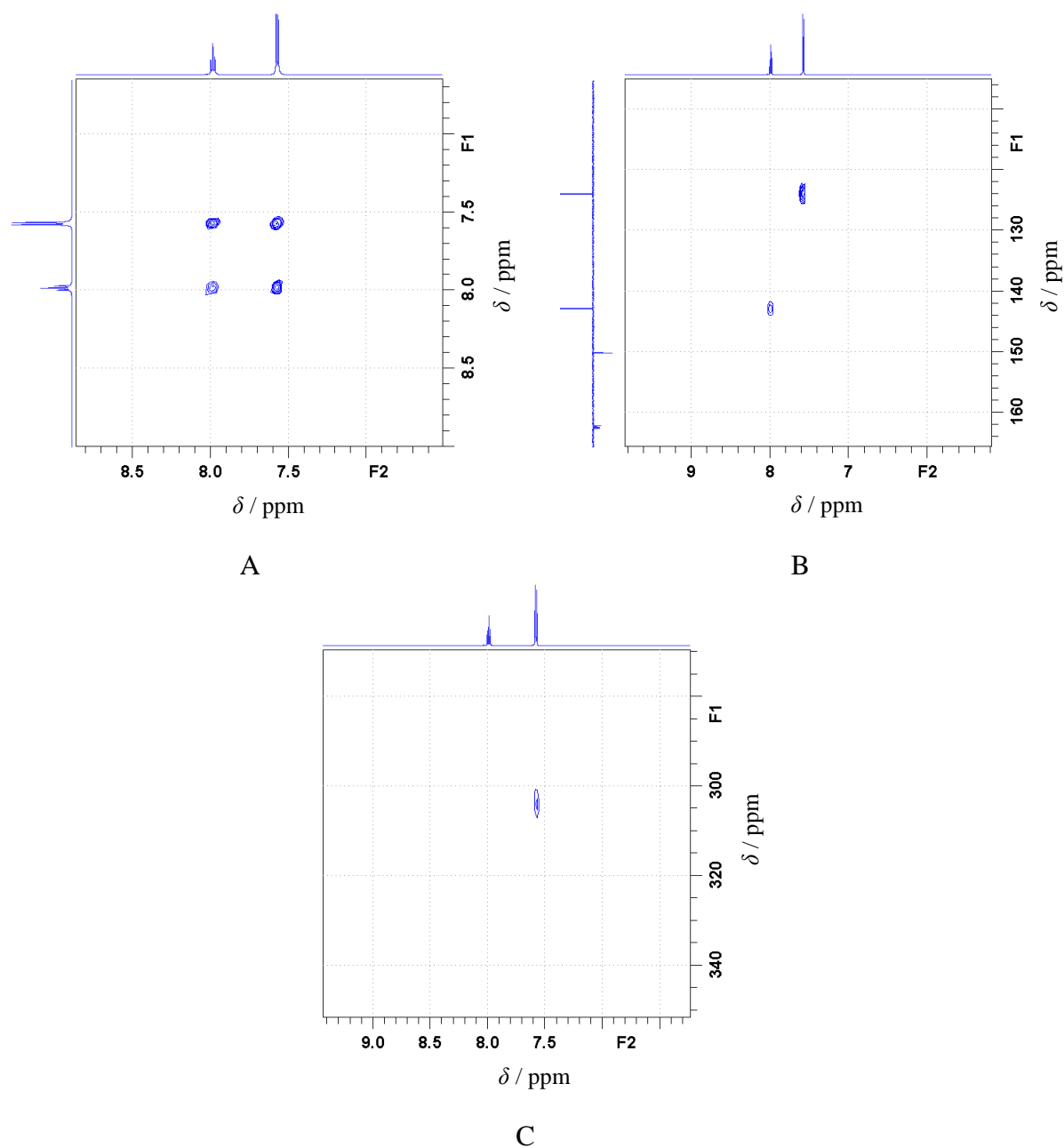


A

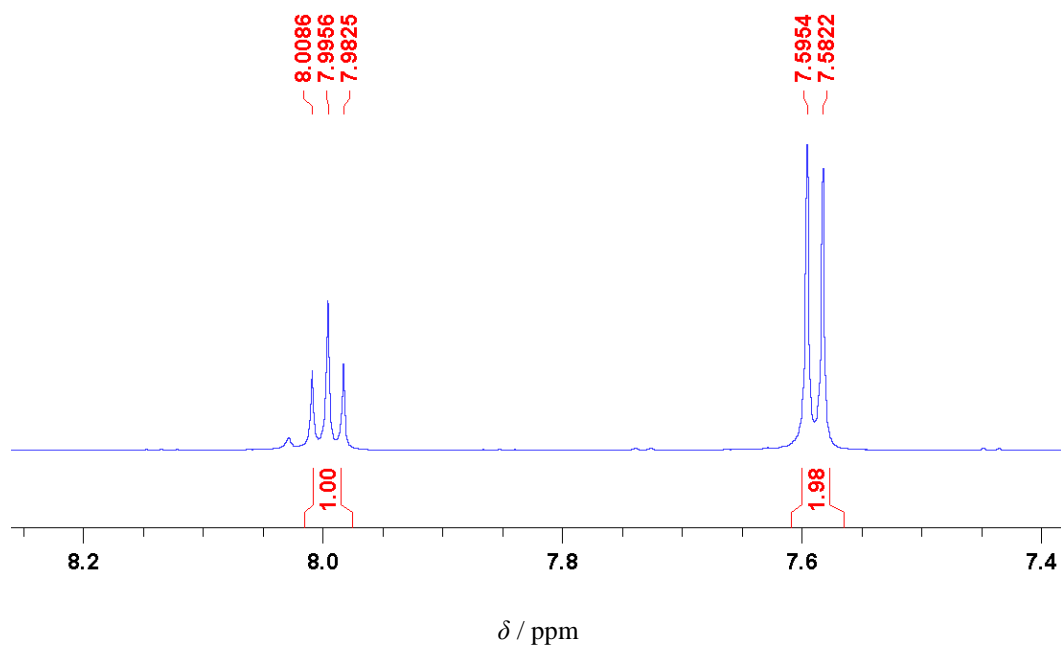


B

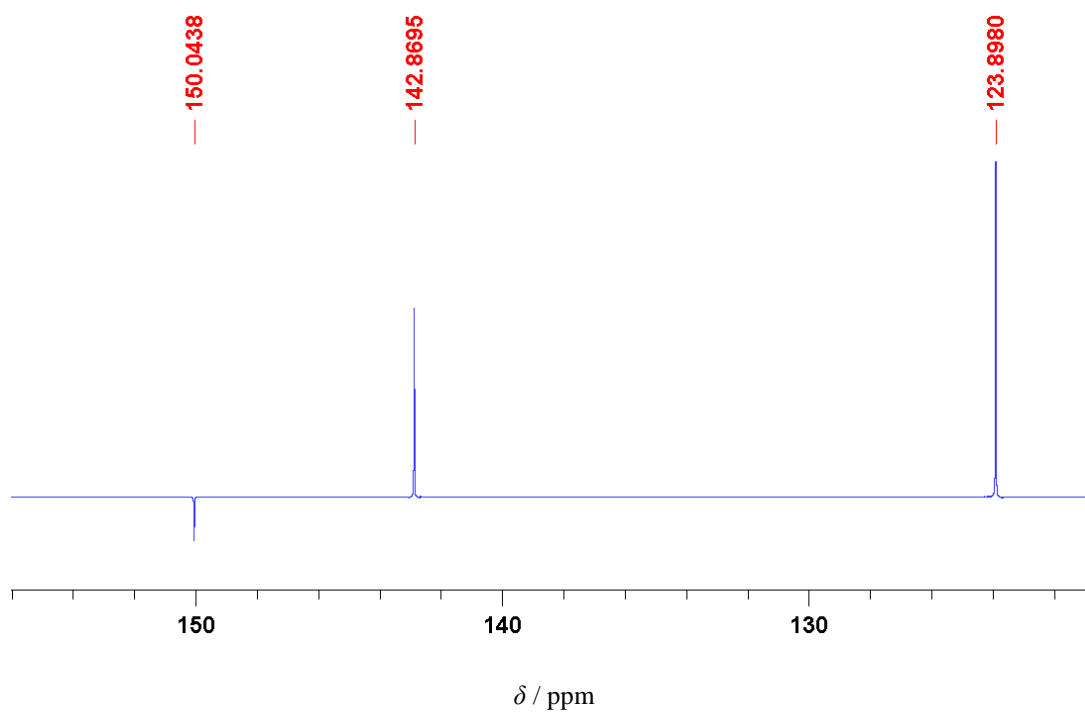
*Slika D62.* A) <sup>1</sup>H i B) <sup>13</sup>C spektri spoja 2,6-Cl<sub>2</sub>py, (L9).



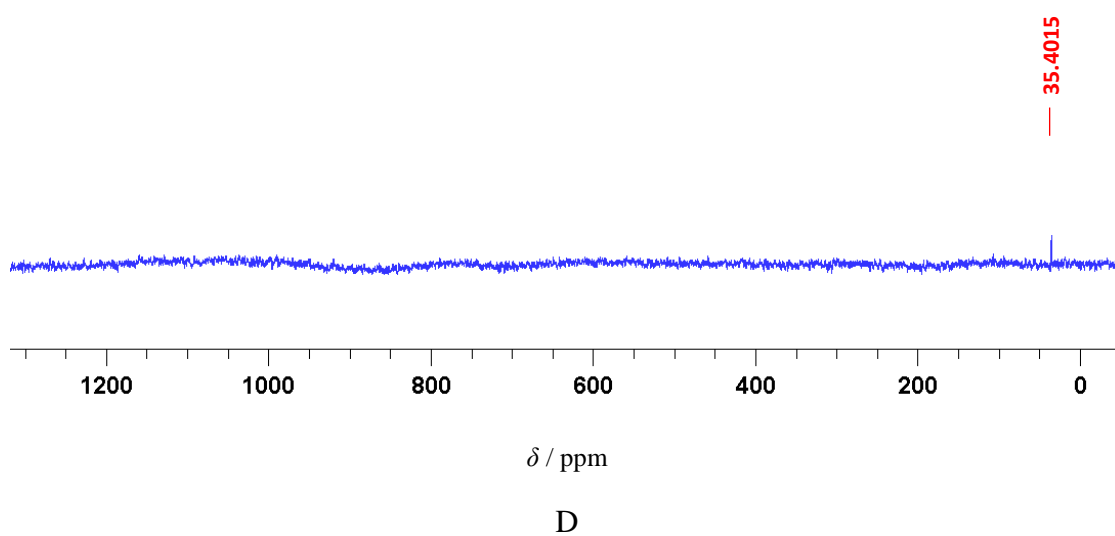
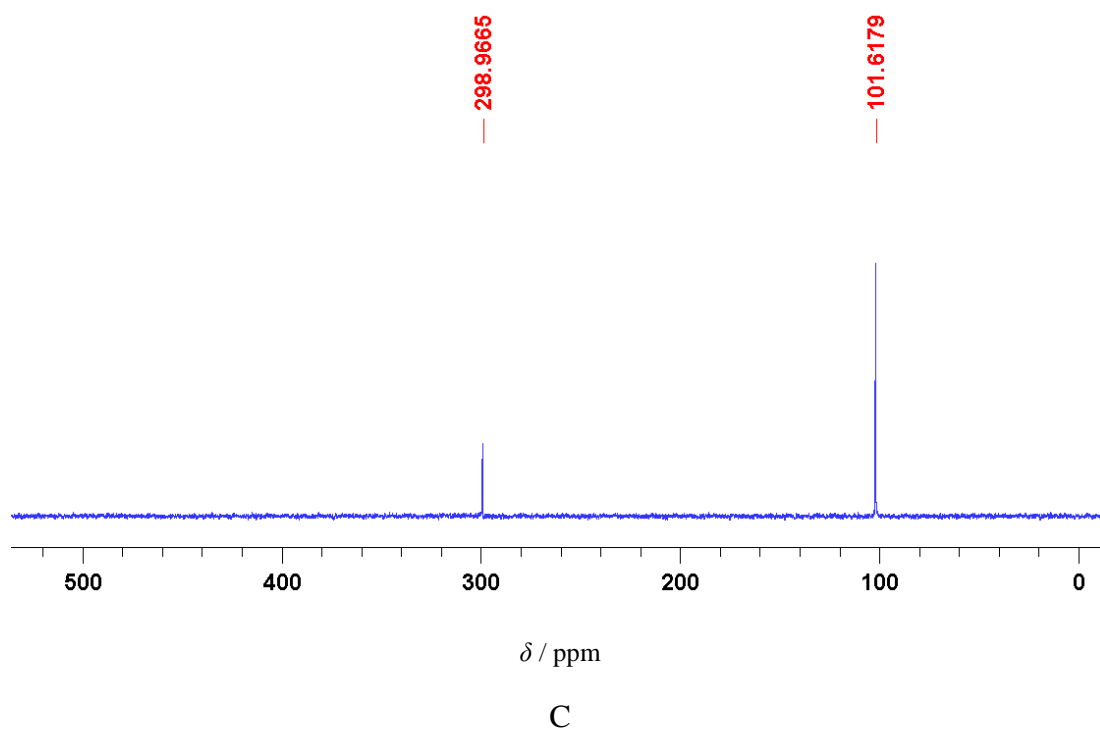
**Slika D63.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC i C)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 2,6- $\text{Cl}_2\text{py}$ , (**L9**).



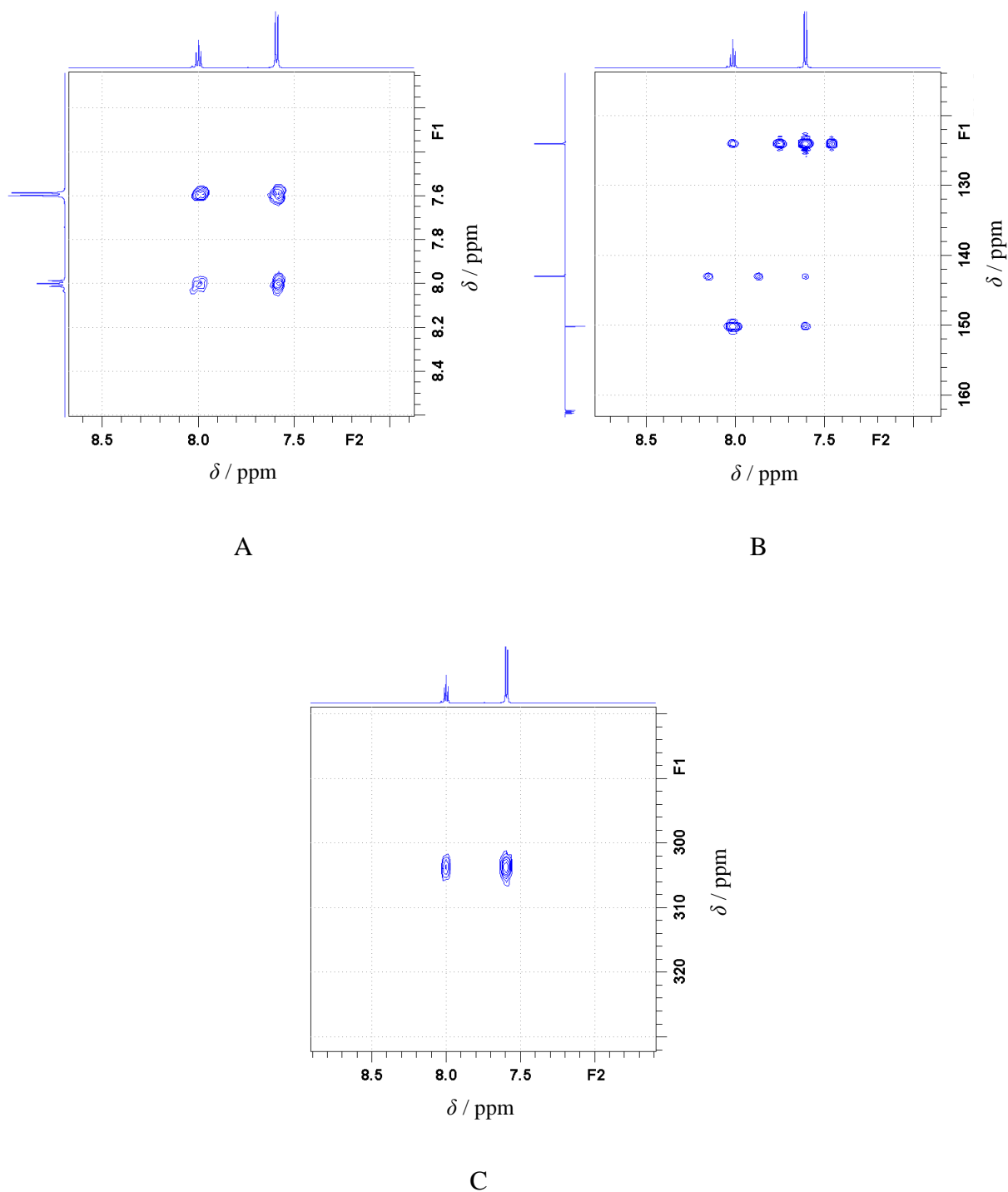
A



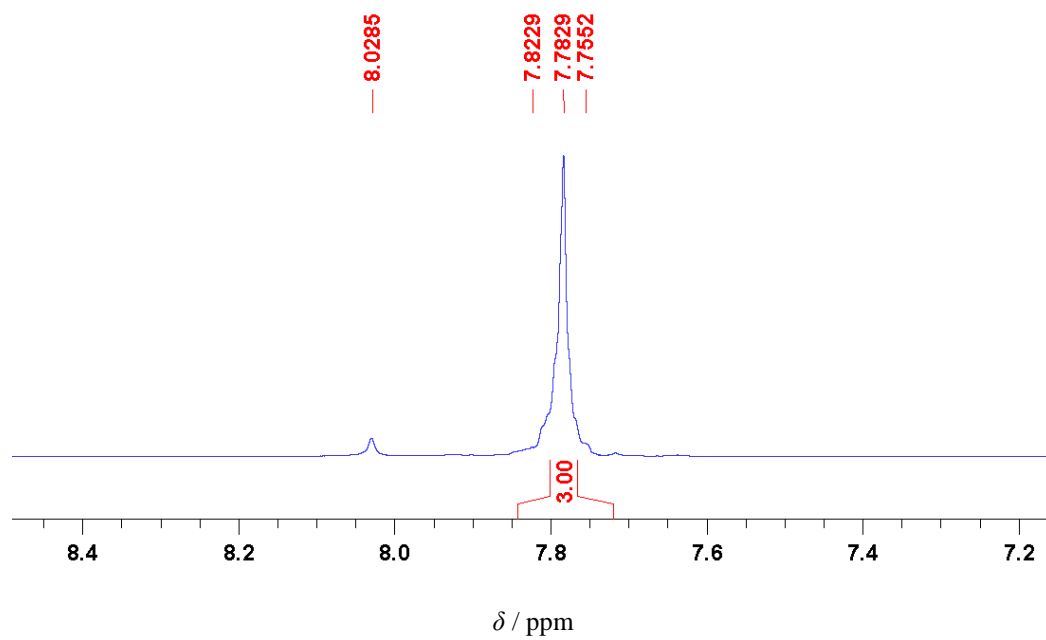
B



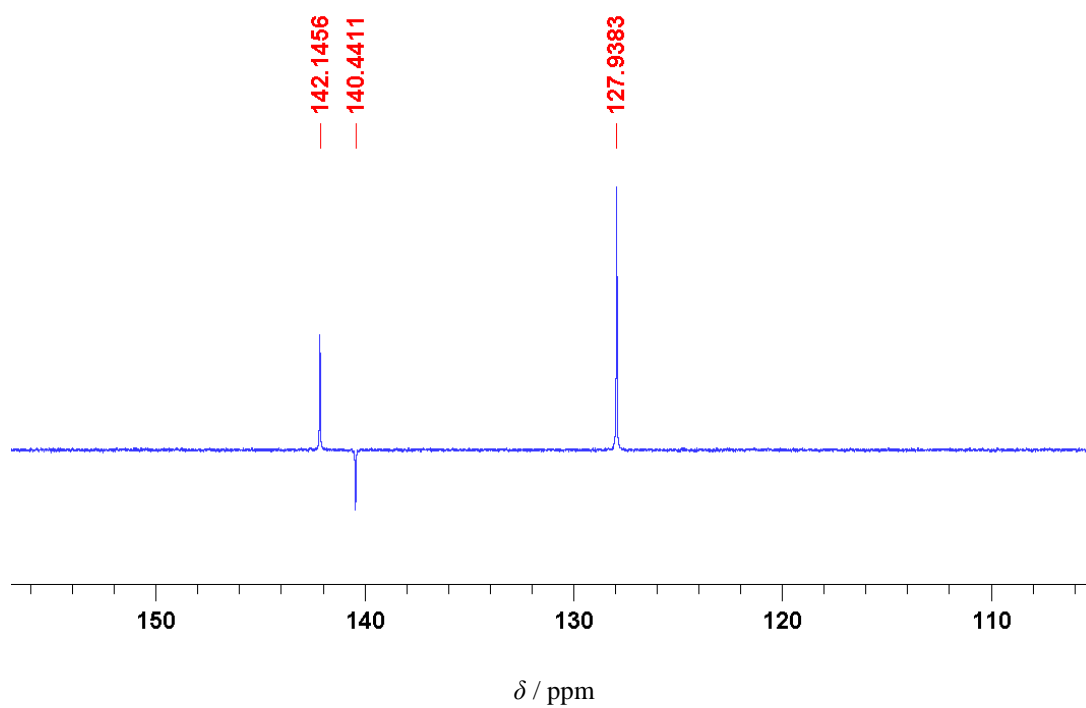
**Slika D64.** A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(2,6\text{-Cl}_2\text{py})_2]$ , (K9).



**Slika D65.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i C)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2,6\text{-Cl}_2\text{py})_2]$ , (**K9**).

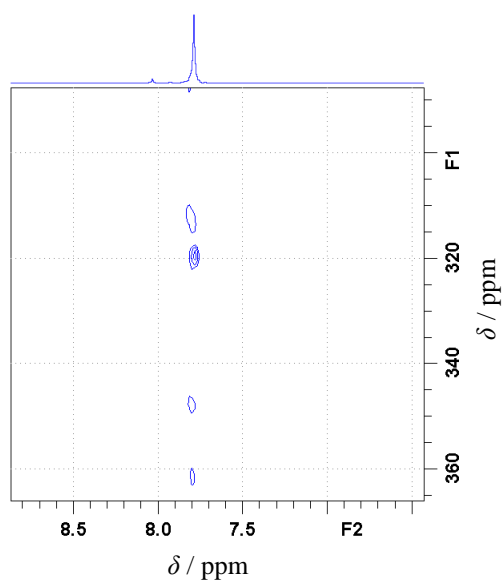


A



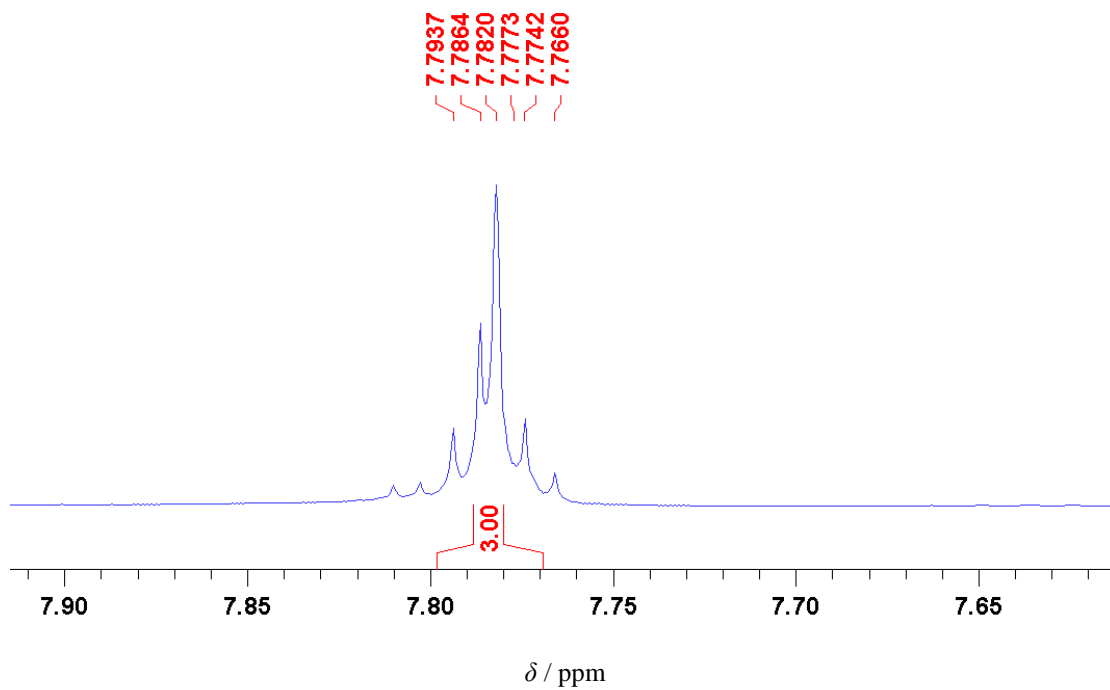
B

*Slika D66.* A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 2,6- $\text{Br}_2\text{py}$ , (L10).

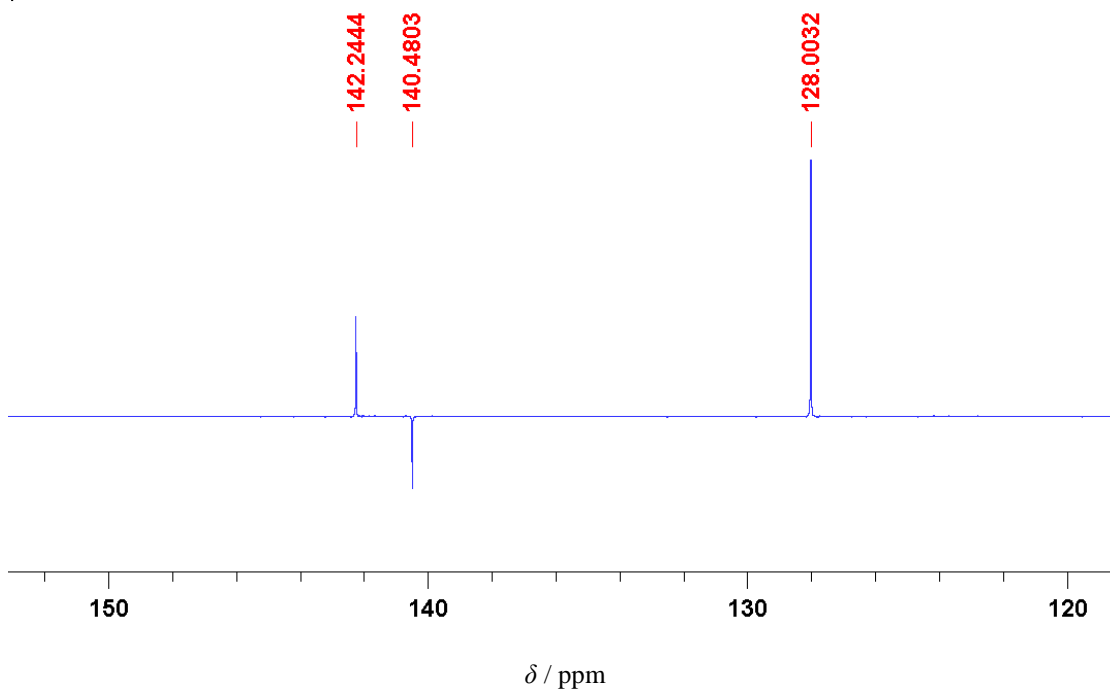


*Slika D67. Uvećani prikaz  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektra NMR spoja 2,6- $\text{Br}_2\text{py}$  (L10).*

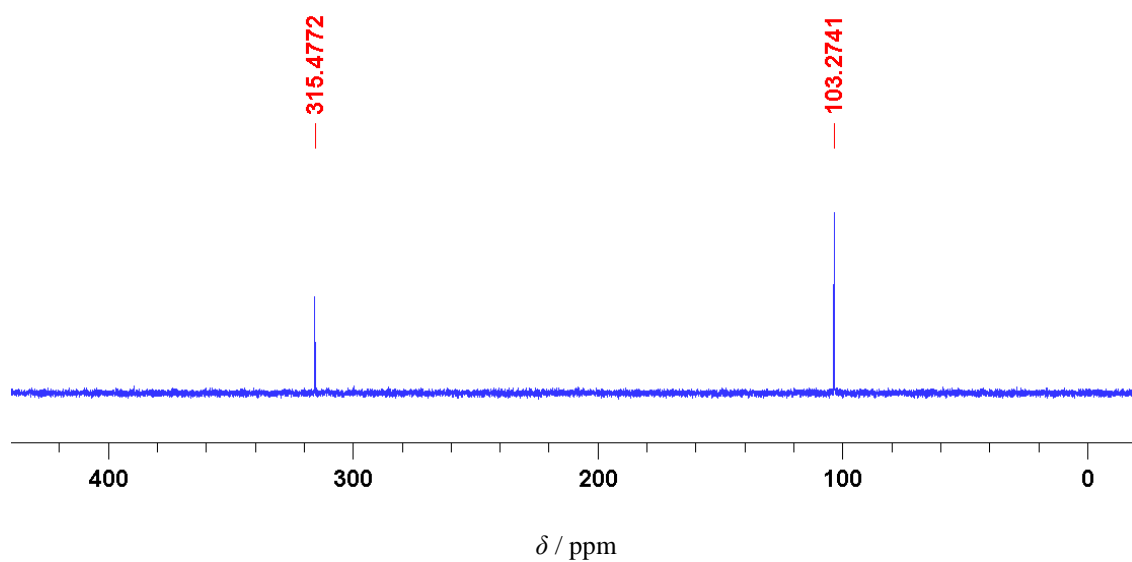




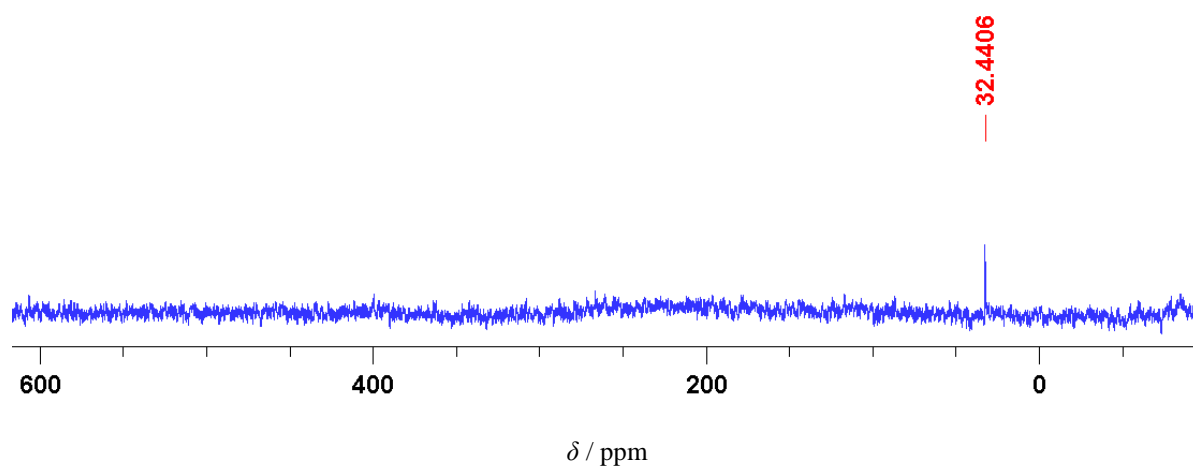
A



B

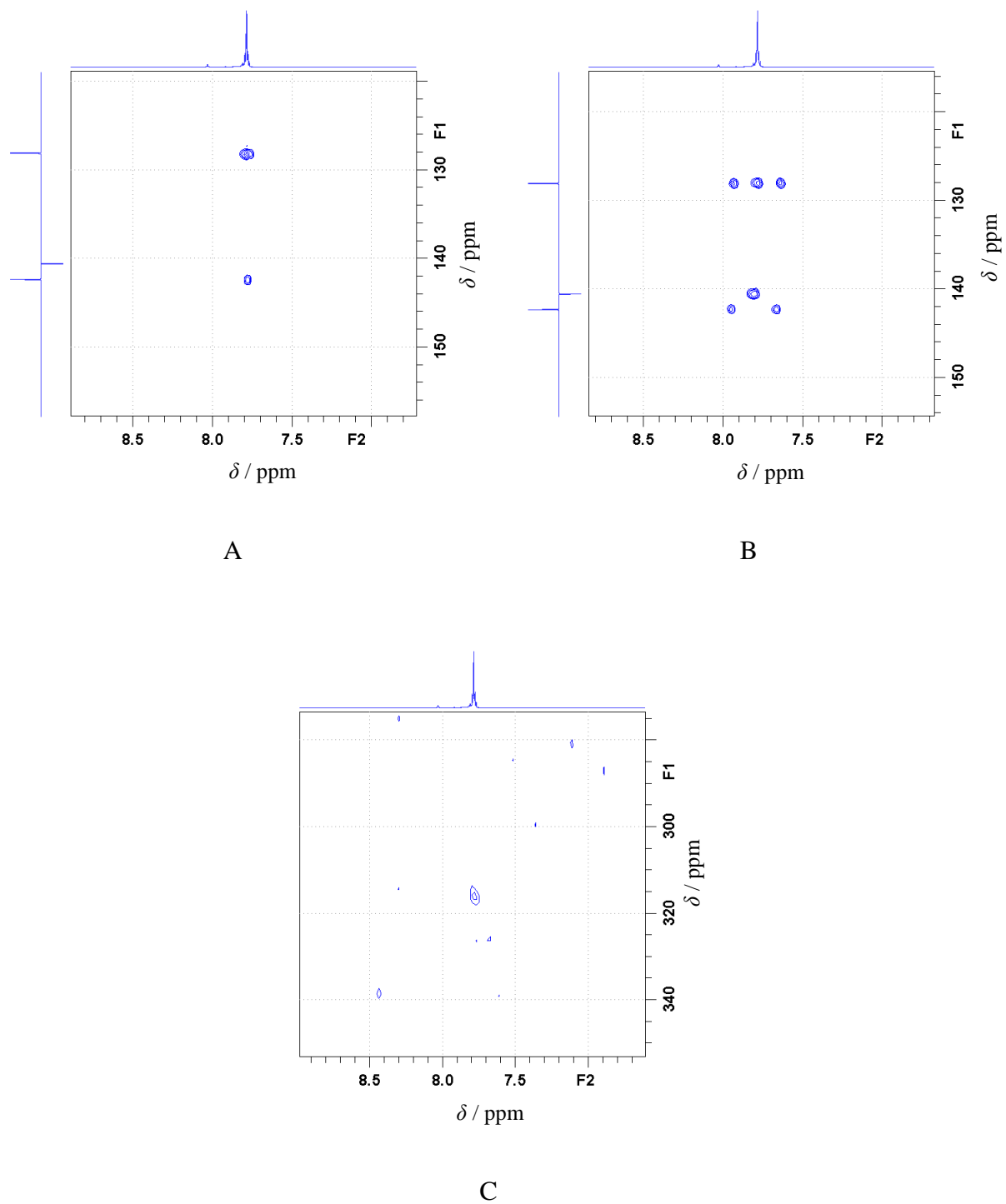


C

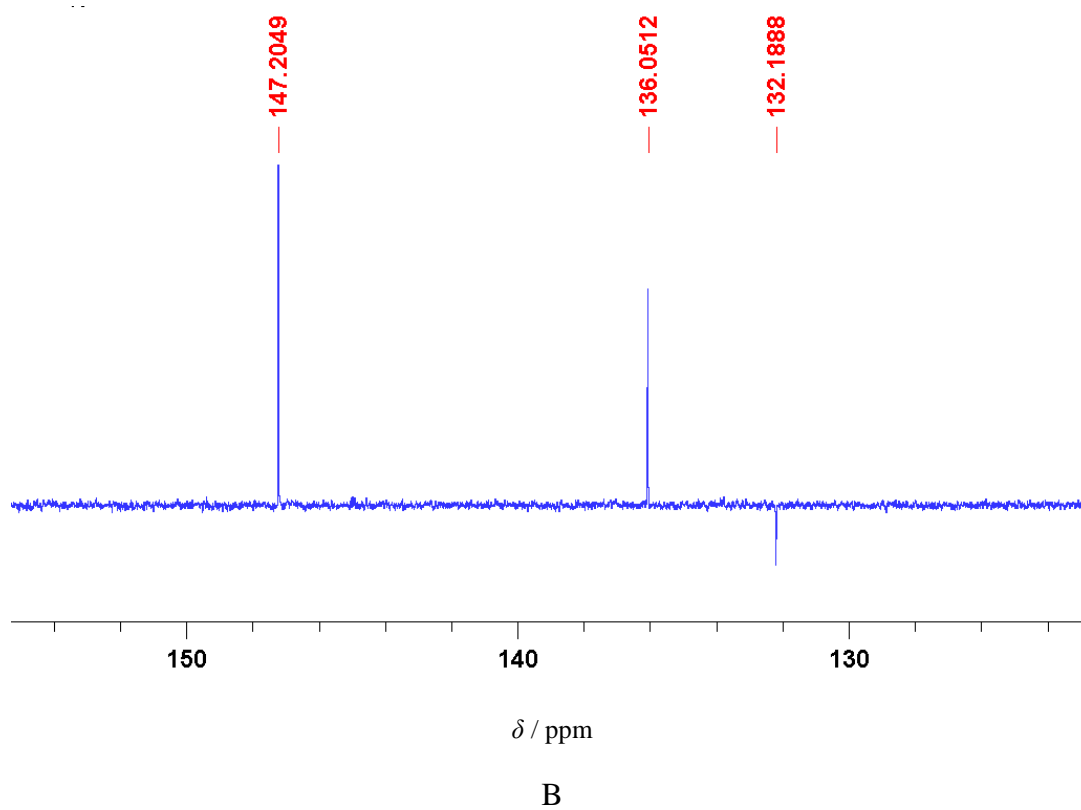
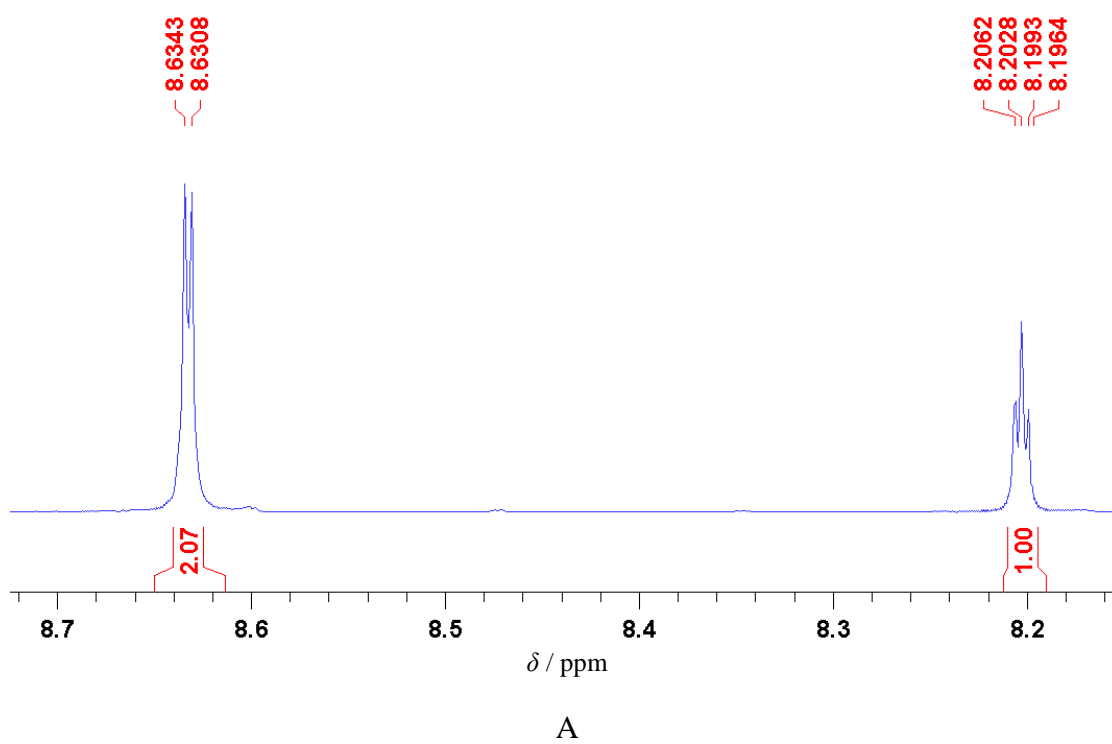


D

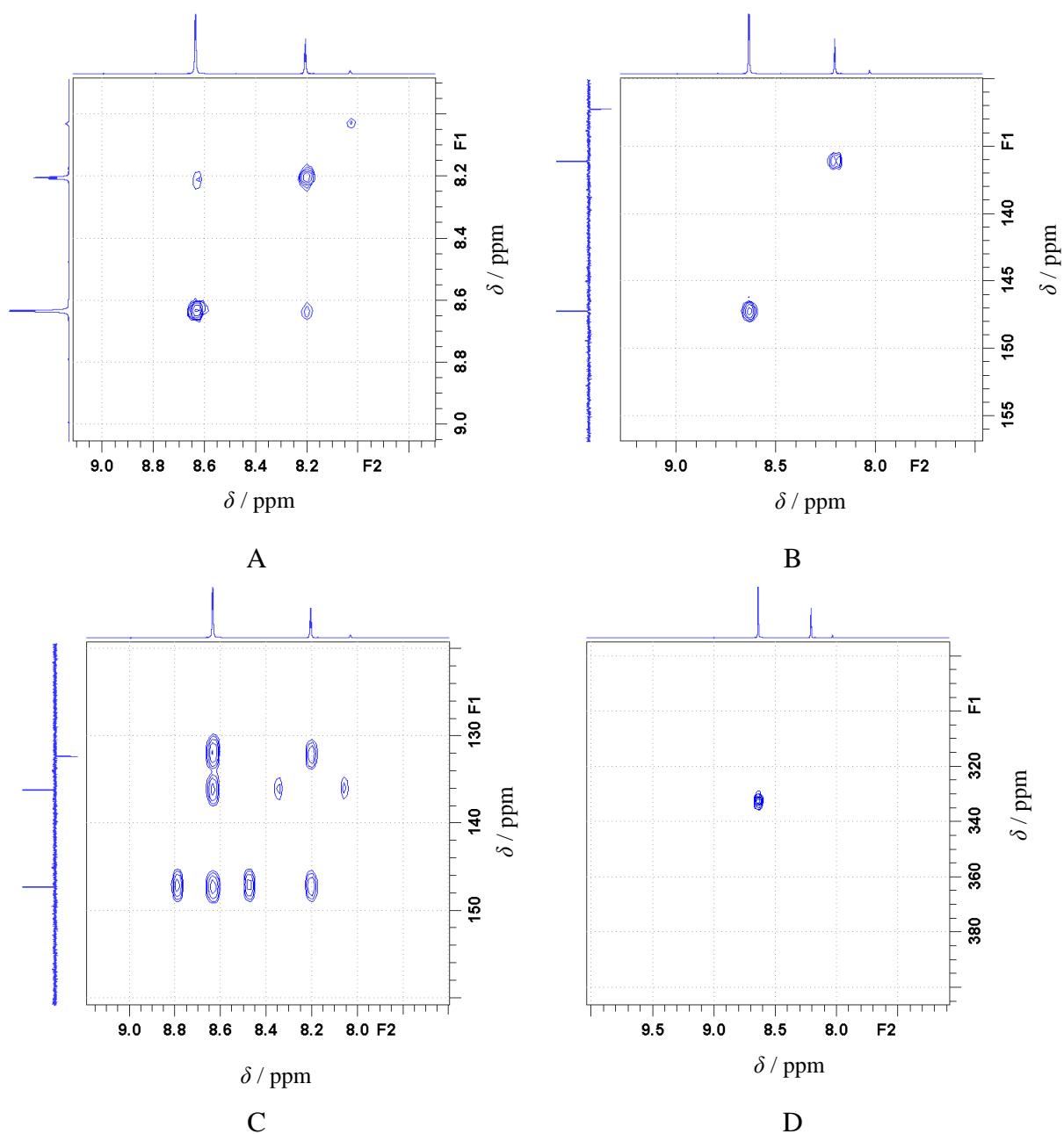
*Slika D68.* A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(2,6\text{-Br}_2\text{py})_2]$ , (K10).



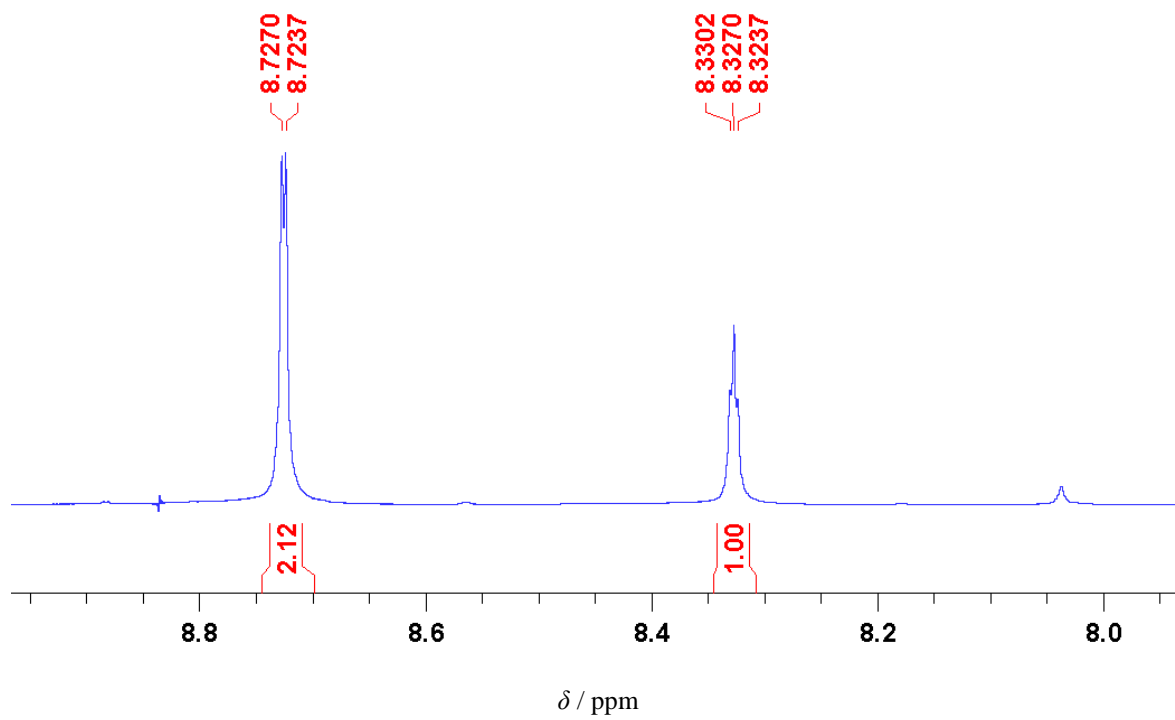
**Slika D69.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i C)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(2,6\text{-Br}_2\text{py})_2]$ , (**K10**).



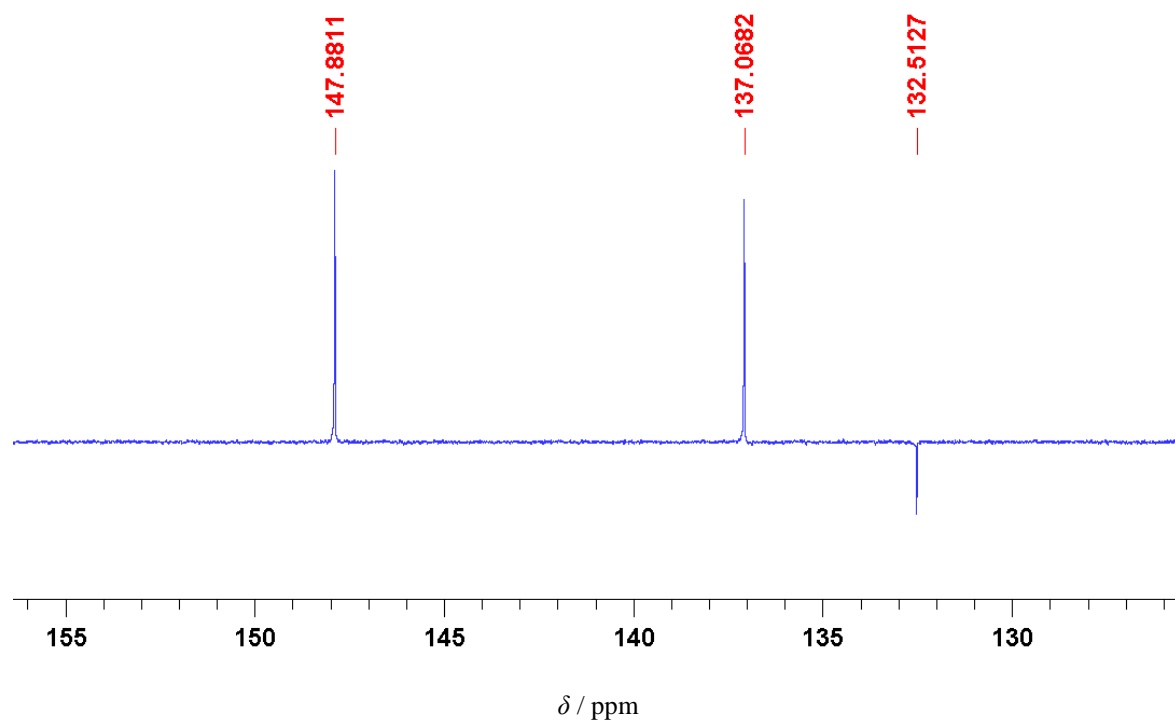
Slika D70. A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 3,5- $\text{Cl}_2\text{py}$ , (L11).



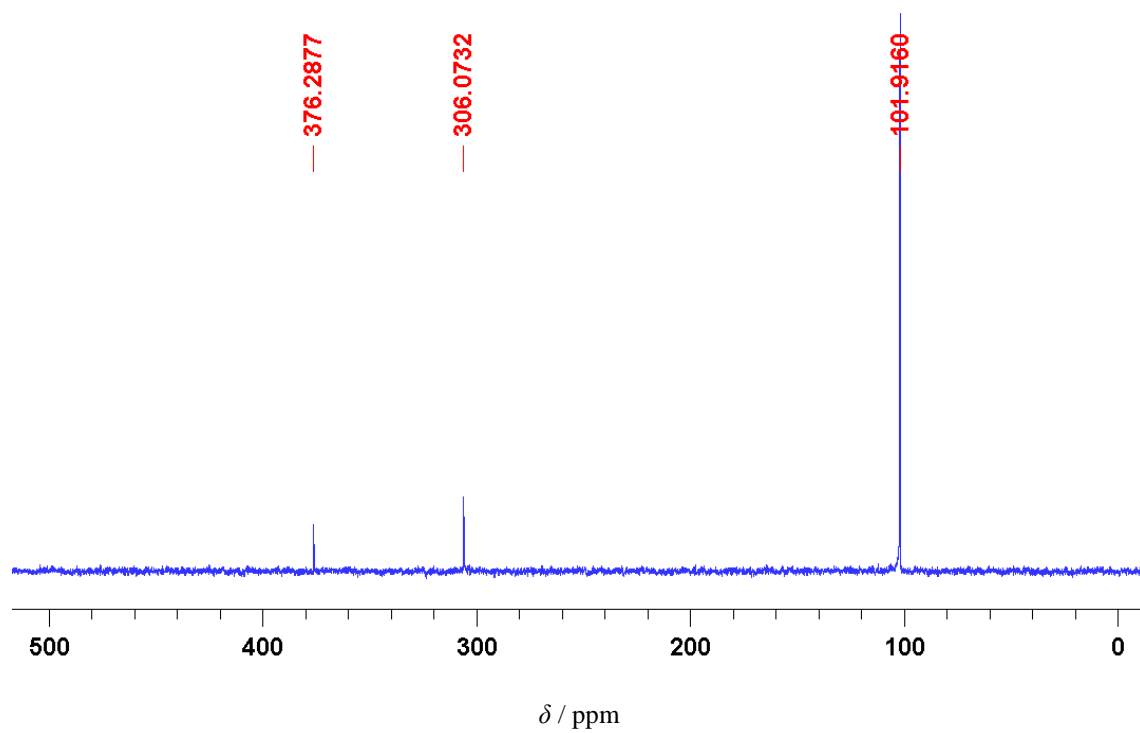
**Slika D71.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 3,5- $\text{Cl}_2\text{py}$ , (L11).



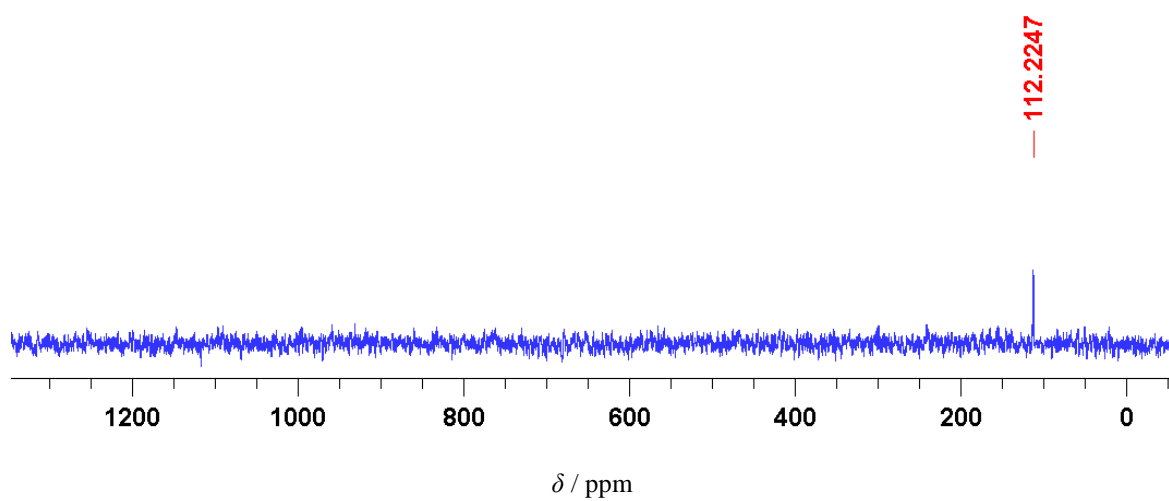
A



B

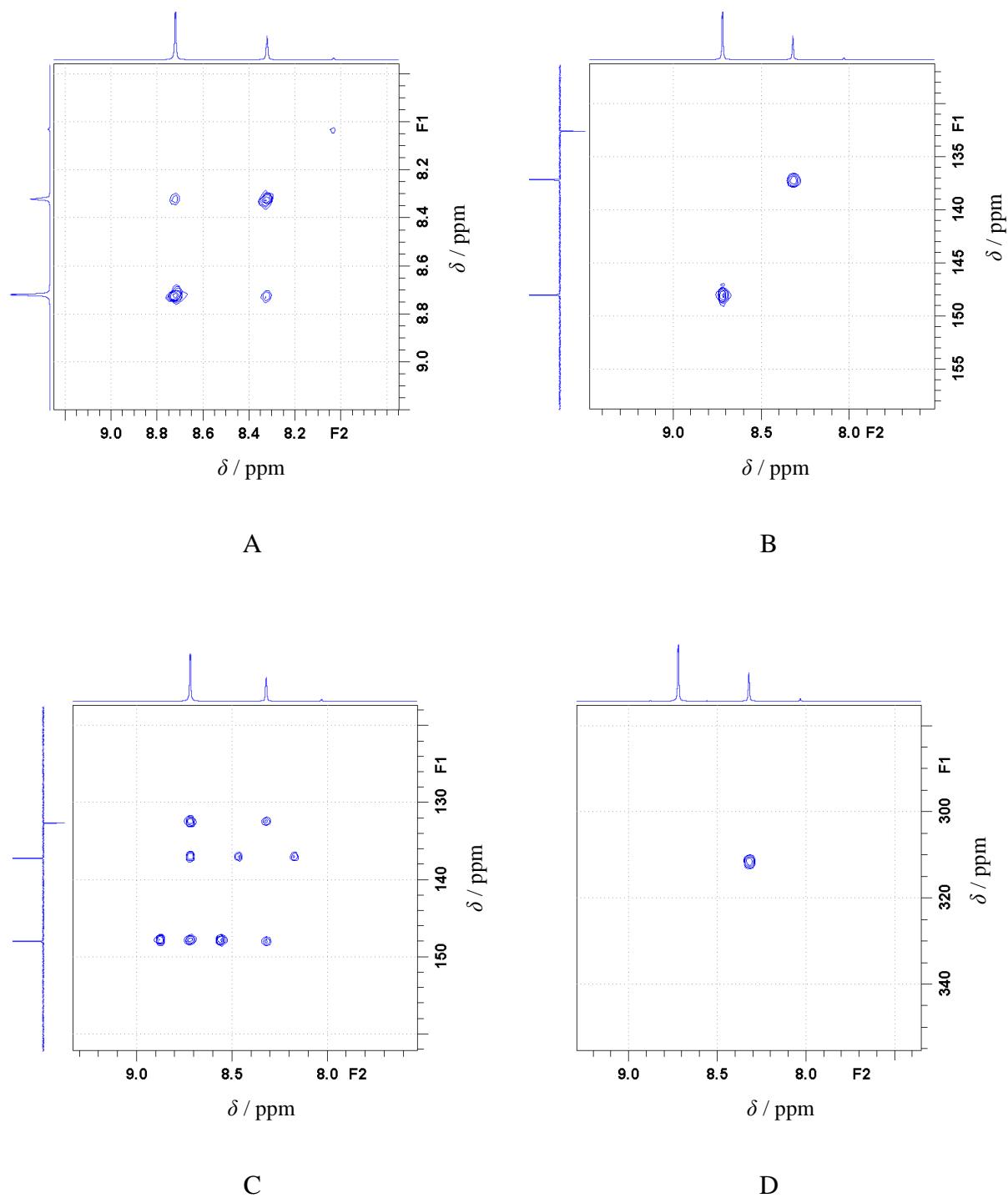


C



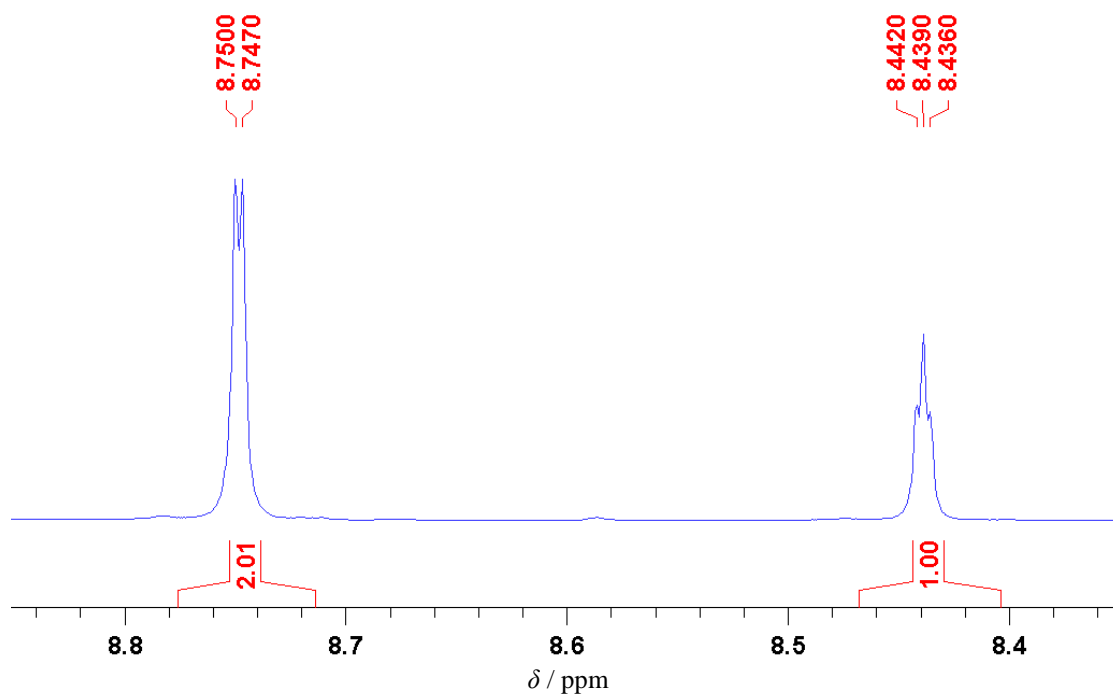
D

Slika D72. A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(3,5\text{-Cl}_2\text{py})_2]$ , (K11).

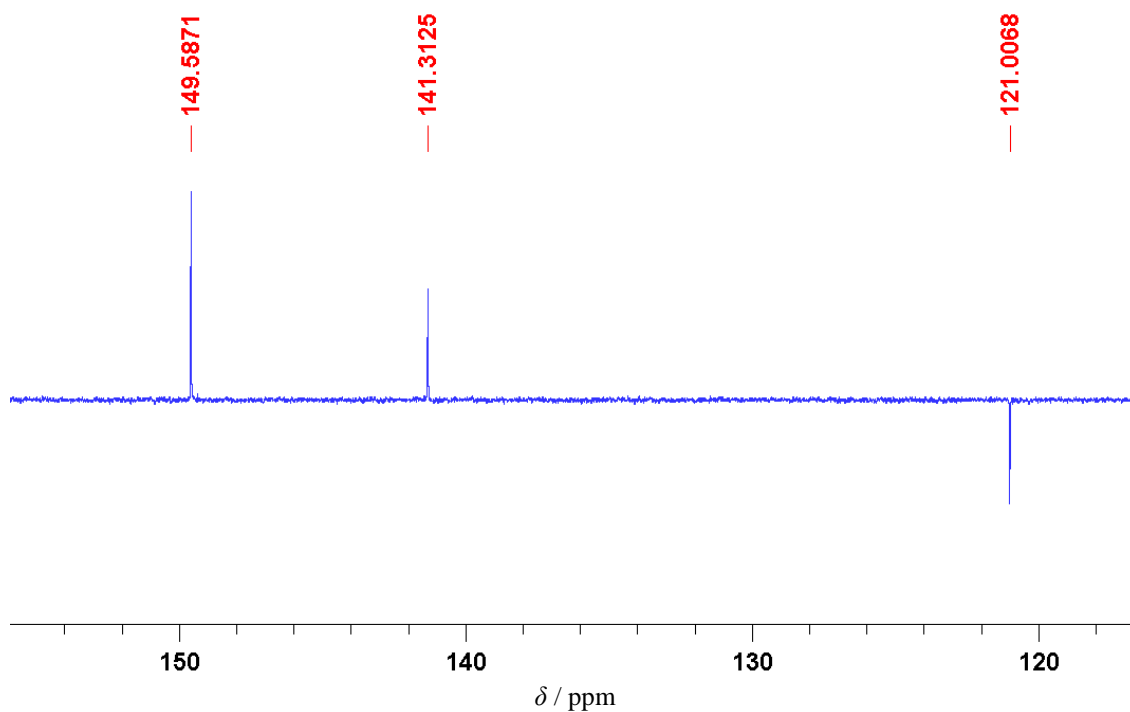


**Slika D73.** Uvećani prikaz A)  $^1H-^1H$  COSY, B)  $^1H-^{13}C$  HMQC, C)  $^1H-^{13}C$  HMBC i D)  $^1H-^{15}N$  HMBC spektara NMR kompleksa  $[Ag(NO_3)(3,5-Cl_2py)_2]$ , (**K11**).



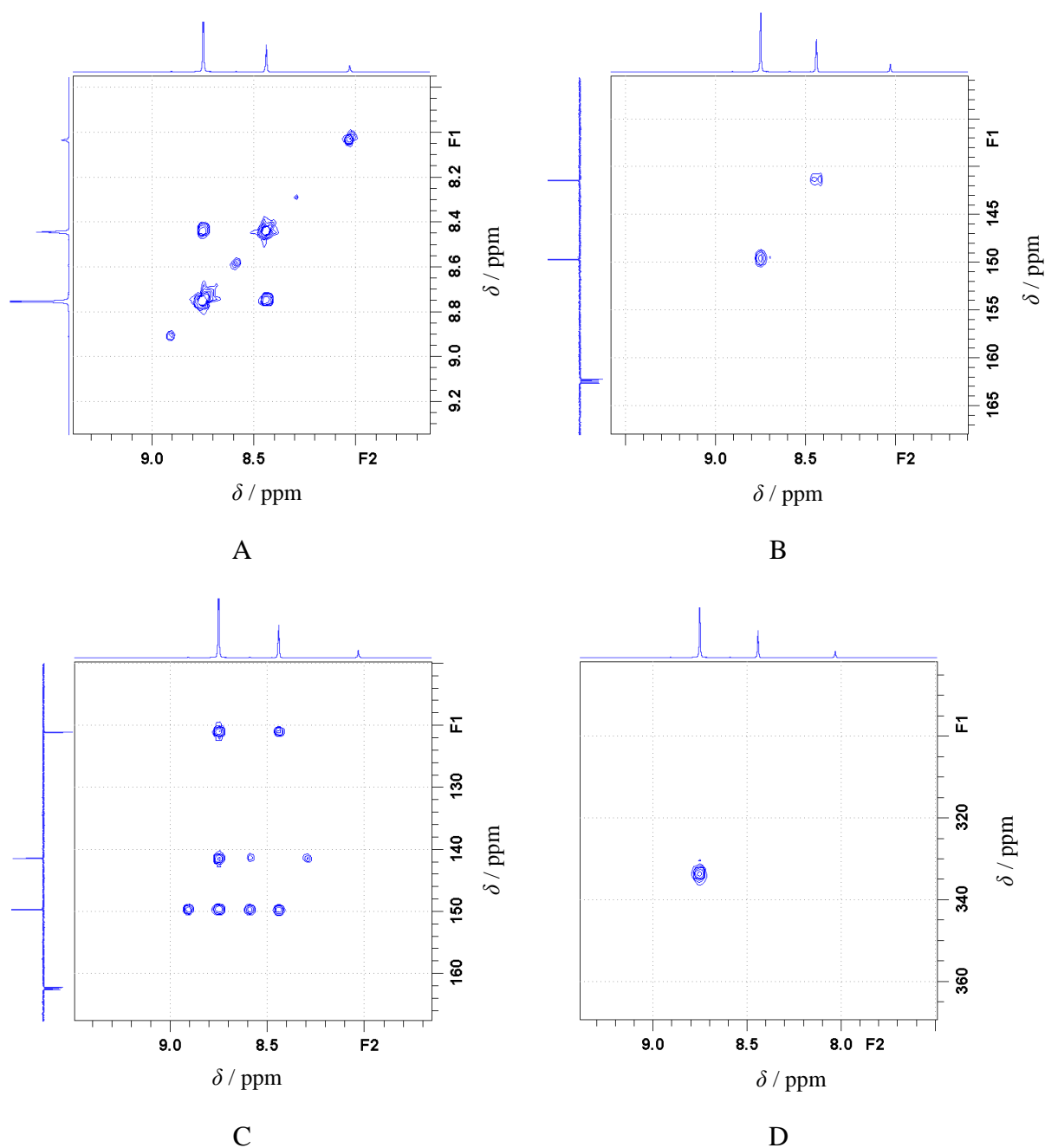


A

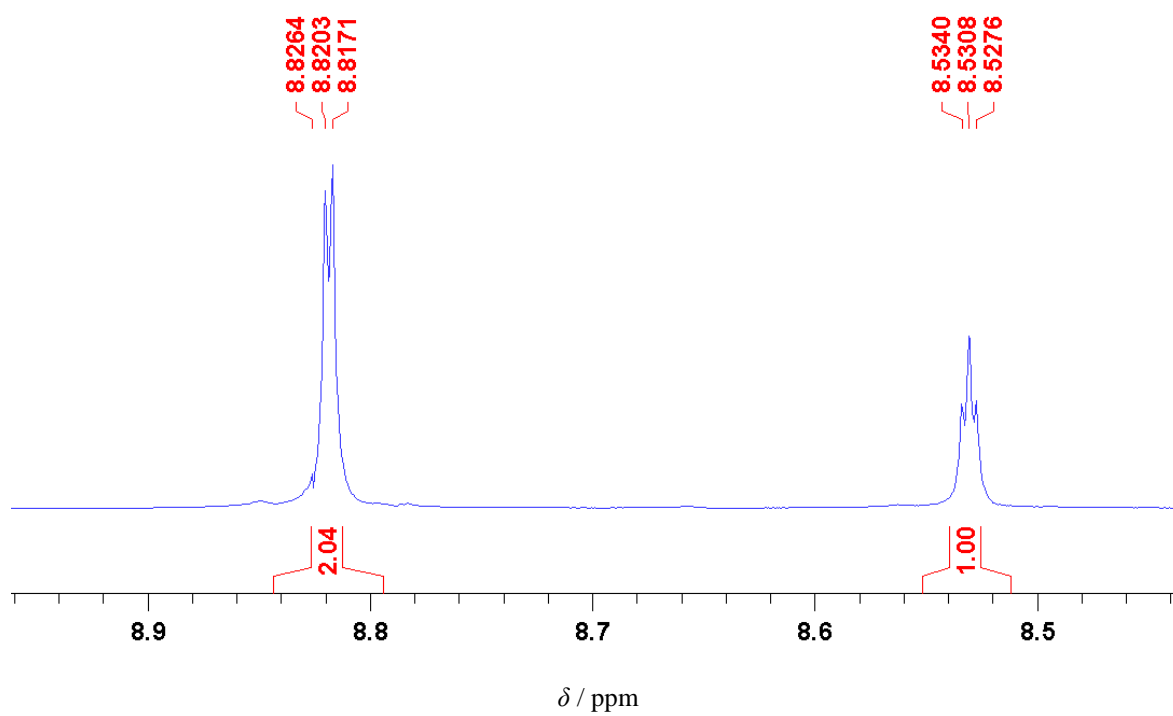


B

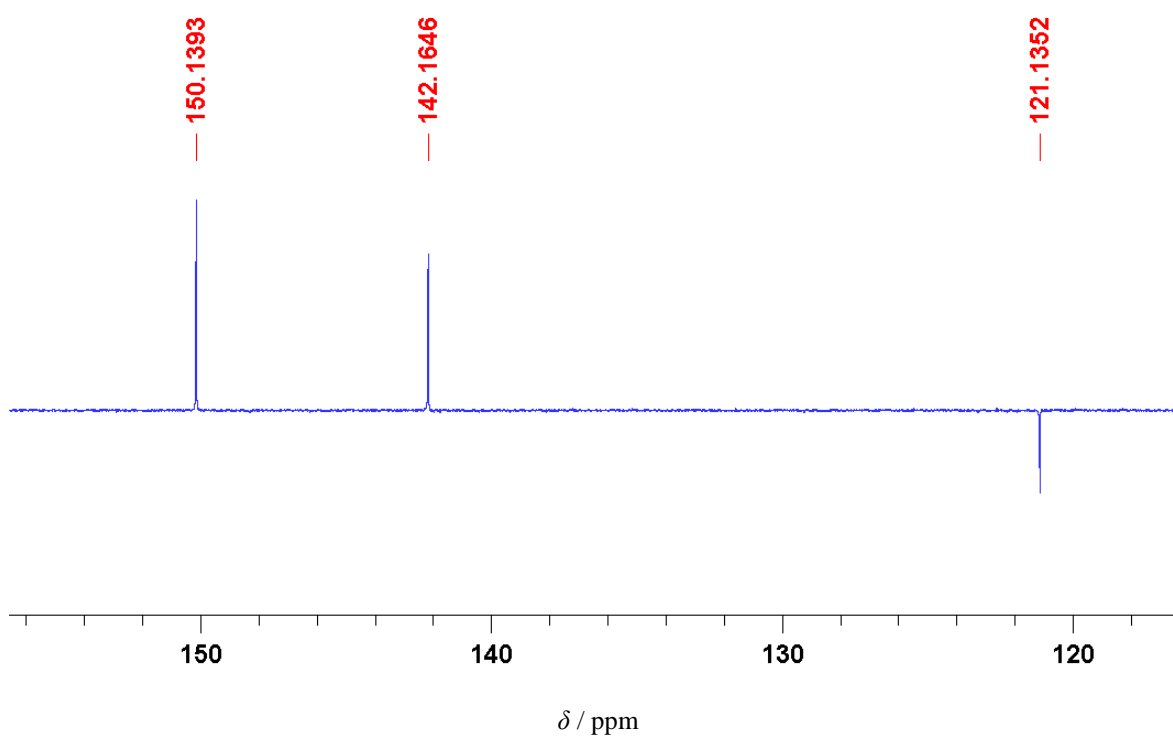
*Slika D74.* A)  $^1\text{H}$  i B)  $^{13}\text{C}$  spektri spoja 3,5- $\text{Br}_2\text{py}$ , (L12).



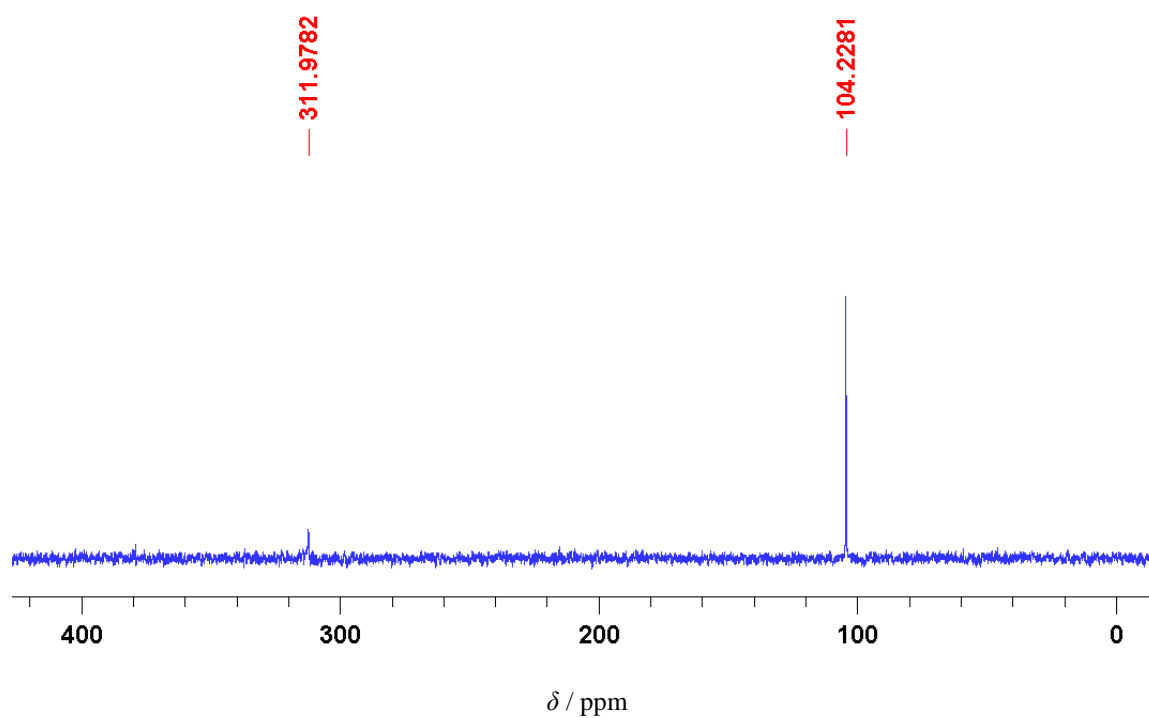
**Slika D75.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC, C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC i D)  $^1\text{H}$ - $^{15}\text{N}$  HMBC spektara NMR spoja 3,5- $\text{Br}_2\text{py}$  (L12).



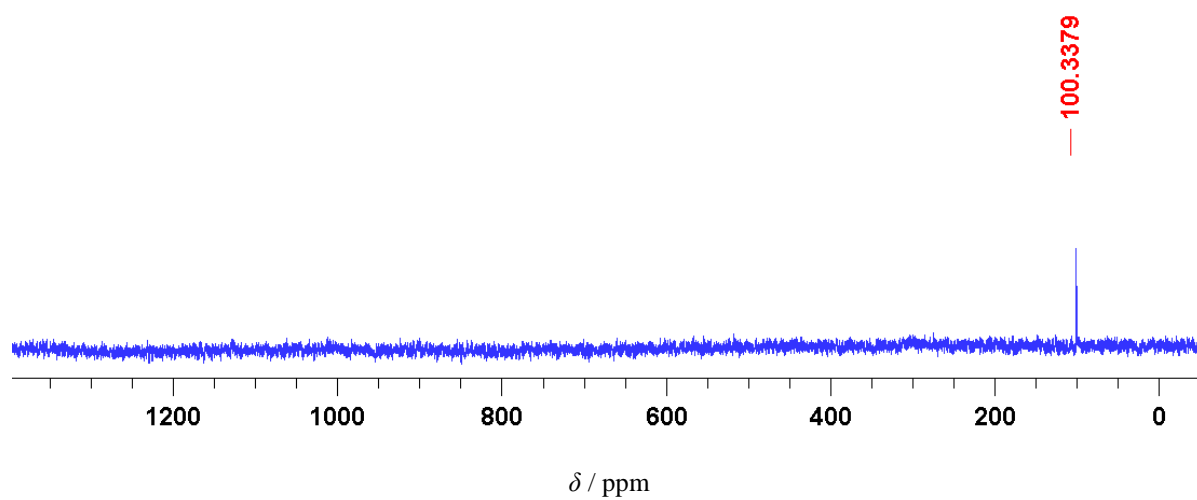
A



B

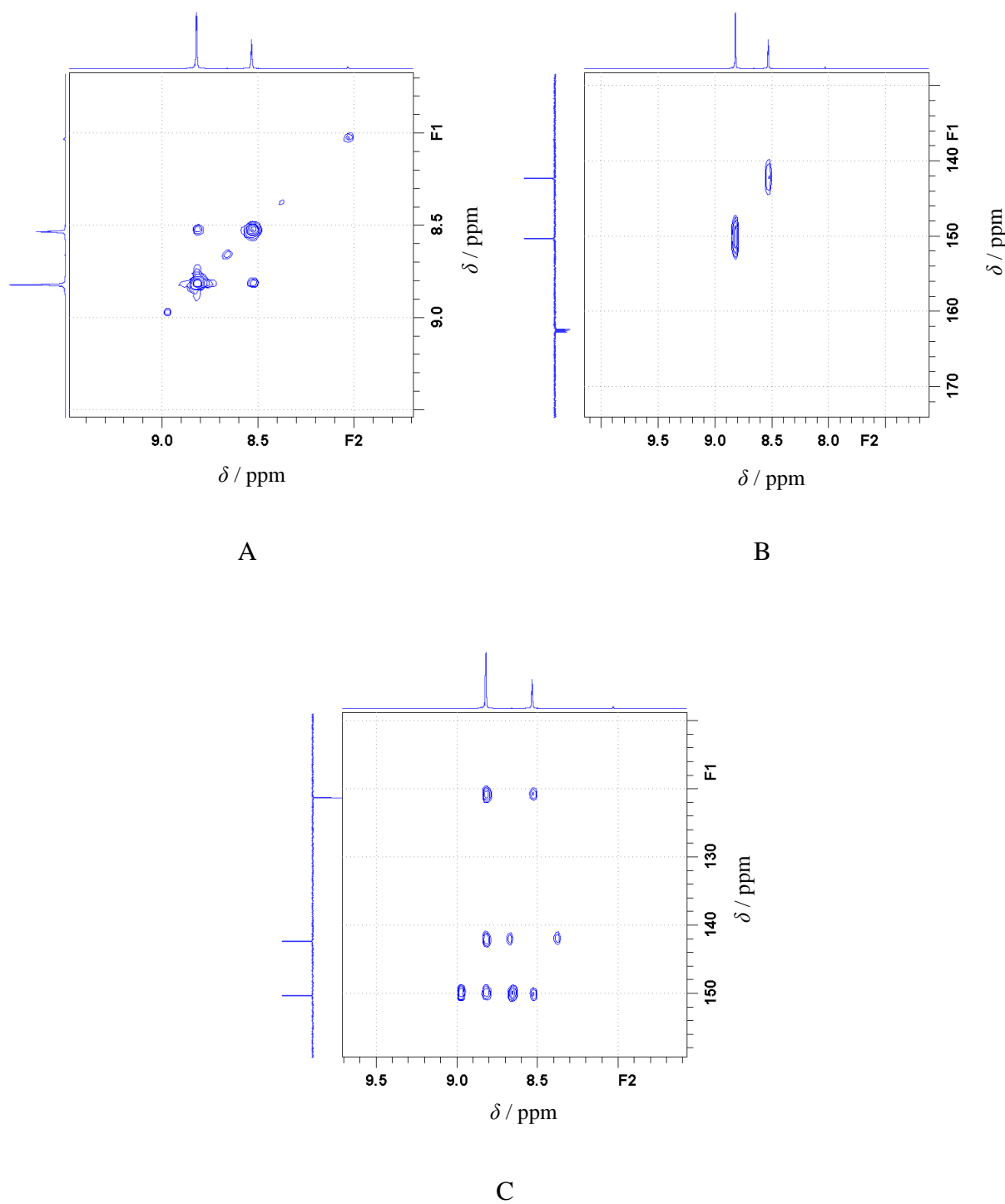


C



D

*Slika D76.* A)  $^1\text{H}$ , B)  $^{13}\text{C}$ , C)  $^{15}\text{N}$  i D)  $^{109}\text{Ag}$  spektri kompleksa  $[\text{Ag}(\text{NO}_3)(3,5\text{-Br}_2\text{py})_2]$ , (**K12**).



**Slika D77.** Uvećani prikaz A)  $^1\text{H}$ - $^1\text{H}$  COSY, B)  $^1\text{H}$ - $^{13}\text{C}$  HMQC i C)  $^1\text{H}$ - $^{13}\text{C}$  HMBC spektara NMR kompleksa  $[\text{Ag}(\text{NO}_3)(3,5\text{-Br}_2\text{py})_2]$ , (K12).

**Tablica D1.** *Kemijski pomaci ( $\delta$  / ppm) i konstante sprege ( ${}^nJ_{H,H}$  / Hz) signala jezgri  ${}^1H$ -atoma kod spojeva **K1** – **K6** te razlike u njihovom kemijskom pomaku nakon kompleksiranja ( $\Delta\delta_{koord}$  / ppm) izračunate prema relaciji  $\Delta\delta_{koord} = \delta_{kompleksa} - \delta_{liganda}$ . (podaci u zagradi).*

Spoj	H-atom ( $\delta$ / ppm, $\Delta\delta_{koord}$ / ppm, ${}^nJ_{H,H}$ / Hz)				
	2	3	4	5	6
<b>K1</b>	/	7,75 (+0,20) <sup>a</sup> ${}^3J_{3,4} = 8,03$ ${}^4J_{3,5} = 1,05$ ${}^5J_{3,6} = 0,70$	8,09 (+0,17) ${}^3J_{3,4} = 8,03$ ${}^3J_{4,5} = 7,39$ ${}^4J_{4,6} = 1,89$	7,62 (+0,17) ${}^3J_{4,5} = 7,39$ ${}^3J_{5,6} = 5,12$ ${}^4J_{3,5} = 1,05$	8,60 (+0,13) ${}^3J_{5,6} = 5,12$ ${}^4J_{4,6} = 1,89$
<b>K2</b>	/	7,75 (+0,06) ${}^3J_{3,4} = 8,07$ ${}^4J_{3,5} = 0,81$ ${}^5J_{3,6} = 0,60$	7,87 (+0,06) ${}^3J_{3,4} = 8,07$ ${}^3J_{4,5} = 7,31$ ${}^4J_{4,6} = 2,10$	7,54 (+0,05) ${}^3J_{4,5} = 7,31$ ${}^3J_{5,6} = 4,85$ ${}^4J_{3,5} = 0,81$	8,49 (+0,05) ${}^3J_{5,6} = 4,85$ ${}^4J_{4,6} = 2,10$ ${}^5J_{3,6} = 0,60$
<b>K3</b>	/	7,94 (+0,04) ${}^3J_{3,4} = 7,94$ ${}^4J_{3,5} = 0,99$ ${}^5J_{3,6} = 0,95$	7,60 (+0,03) ${}^3J_{3,4} = 7,94$ ${}^3J_{4,5} = 7,49$ ${}^4J_{4,6} = 2,09$	7,50 (+0,03) ${}^3J_{4,5} = 7,49$ ${}^3J_{5,6} = 4,82$ ${}^4J_{3,5} = 0,99$	8,44 (+0,02) ${}^3J_{5,6} = 4,82$ ${}^4J_{4,6} = 2,09$ ${}^5J_{3,6} = 0,95$
<b>K4</b>	8,71 (+0,05) ${}^4J_{2,4} = 2,53$ ${}^5J_{2,5} = 0,60$	/	8,04 (+0,08) ${}^3J_{4,5} = 8,14$ ${}^4J_{2,4} = 2,53$ ${}^4J_{4,6} = 1,36$	7,56 (+0,06) ${}^3J_{4,5} = 8,14$ ${}^3J_{5,6} = 4,80$ ${}^5J_{2,5} = 0,60$	8,62 (+0,04) ${}^3J_{5,6} = 4,80$ ${}^4J_{4,6} = 1,36$
<b>K5</b>	8,78 (+0,04) ${}^4J_{2,4} = 2,33$ ${}^5J_{2,5} = 0,76$	/	8,14 (+0,05) ${}^3J_{4,5} = 8,16$ ${}^4J_{2,4} = 2,33$ ${}^4J_{4,6} = 1,44$	7,48 (+0,04) ${}^3J_{4,5} = 8,16$ ${}^3J_{5,6} = 4,77$ ${}^5J_{2,5} = 0,76$	8,64 (+0,03) ${}^3J_{5,6} = 4,77$ ${}^4J_{4,6} = 1,44$
<b>K6</b>	8,97 (+0,09) ${}^4J_{2,4} = 2,18$ ${}^5J_{2,5} = 0,75$	/	8,36 (+0,12) ${}^3J_{4,5} = 8,03$ ${}^4J_{2,4} = 2,18$ ${}^4J_{4,6} = 1,48$	7,43 (+0,12) ${}^3J_{4,5} = 8,03$ ${}^3J_{5,6} = 4,75$ ${}^5J_{2,5} = 0,75$	8,70 (+0,09) ${}^3J_{5,6} = 4,75$ ${}^4J_{4,6} = 1,48$

**Tablica D2.** *Kemijski pomaci ( $\delta$  / ppm) i konstante sprege ( ${}^nJ_{H,H}$  / Hz) signala jezgri  ${}^1H$ -atoma kod spojeva **K7** – **K12** te razlike u njihovom kemijskom pomaku nakon kompleksiranja ( $\Delta\delta_{koordin}$  / ppm) izračunate prema relaciji  $\Delta\delta_{koordin} = \delta_{kompleksa} - \delta_{liganda}$  (podaci u zagradi).*

Spoj	H-atom ( $\delta$ / ppm, $\Delta\delta_{koordin}$ / ppm, ${}^nJ_{H,H}$ / Hz)				
	2	3	4	5	6
<b>K7</b>	/	7,69 (+0,15) ${}^3J_{3,4} = 8,62$	8,10 (+0,13) ${}^3J_{3,4} = 8,56$ ${}^4J_{4,6} = 2,75$	/	8,57 (+0,11) ${}^4J_{4,6} = 2,63$
<b>K8</b>	/	7,74 (+0,12) ${}^3J_{3,4} = 8,81$	8,09 (+0,10) ${}^3J_{3,4} = 8,81$ ${}^4J_{4,6} = 2,64$	/	8,63 (+0,09) ${}^4J_{4,6} = 2,20$
<b>K9</b>	/	7,59 (+0,02) ${}^3J_{3,4} = 7,83$	7,99 (+0,01) ${}^3J_{3(5),4} = 8,14$	7,59 (+0,02) ${}^3J_{4,5} = 7,83$	/
<b>K10</b>	/		7,80-7,77 (+0,01) $m^a$		/
<b>K11</b>	8,73 (+0,14) ${}^3J_{2(6),4} = 1,90$	/	8,33 (+0,14) ${}^3J_{4,4(6)} = 1,73$	/	8,73 (+0,14) ${}^3J_{2(6),4} = 1,90$
<b>K12</b>	8,82 (+0,12) ${}^3J_{2(6),4} = 1,94$	/	8,53 (+0,11) ${}^3J_{4,4(6)} = 1,92$	/	8,82 (+0,12) ${}^3J_{2(6),4} = 1,94$

<sup>a</sup>multiplet

**Tablica D3.** *Kemijski pomaci ( $\delta$  / ppm) signala jezgri  $^{13}\text{C}$ -atoma kod spojeva **K1**–**K12** te razlika u njihovom kemijskom pomaku nakon kompleksiranja ( $\Delta\delta_{\text{koord}}$  / ppm) izračunata prema relaciji  $\Delta\delta_{\text{koord}} = \delta_{\text{kompleksa}} - \delta_{\text{liganda}}$  (podaci u zagradi).*

C-atom	Spoj ( $\delta$ / ppm, $\Delta\delta_{\text{koord}}$ / ppm)											
	<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>K4</b>	<b>K5</b>	<b>K6</b>	<b>K7</b>	<b>K8</b>	<b>K9</b>	<b>K10</b>	<b>K11</b>	<b>K12</b>
2	151,0	142,3	120,3	149,9	152,0	156,9	149,4	140,6	150,0	140,5	147,9	150,1
	<i>a</i>	+0,3	+1,7	+1,2	+1,2	+1,0	+0,9	+0,7	<i>a</i>	+0,1	+1,2	+1,1
3	125,4	128,9	135,7	132,5	121,1	94,1	126,1	130,3	123,9	128,0	132,5	121,1
	+0,7	+0,4	+0,3	+0,6	+0,3	<i>a</i>	+0,5	+0,5	+0,1	+0,1	+1,1	+0,5
4	141,5	140,6	139,4	138,1	140,8	146,5	140,0	142,6	142,9	142,2	137,1	142,2
	+1,7	+1,1	+0,8	+2,0	+1,9	+1,7	+0,7	+0,7	+0,1	+0,1	+1,4	+1,4
5	124,0	124,0	124,1	126,2	126,7	126,7	131,2	120,4	123,9	128,0	132,5	121,1
	+0,9	+0,5	+0,3	+1,0	+1,1	+0,6	+0,8	+0,5	+0,1	+0,1	+1,1	+0,5
6	151,6	151,7	152,6	149,7	149,9	149,9	149,0	151,7	150,0	140,5	147,9	150,1
	+1,4	+1,1	+1,2	+1,5	+1,5	+1,3	+0,8	+0,7	<i>a</i>	+0,1	+1,2	+1,1

<sup>a</sup>Nema promjene u kemijskom pomaku signala u spektru.



**Tablica D4.** *Kemijski pomaci ( $\delta$  / ppm) signala jezgri  $^{15}\text{N}$ -py-atoma kod spojeva **L1** – **L12** te razlika istih u odnosu na one u jezgri piridina ( $\Delta\delta_{\text{koord}}$  / ppm) izračunata prema relaciji  $\Delta\delta_{\text{koord}} = \delta_{\text{liganda}} - \delta_{\text{piridina}}$  (podaci u zagradi).*

Jezgra	Spoj ( $\delta$ / ppm, $\Delta\delta_{\text{koord}}$ / ppm)											
	<b>L1</b>	<b>L2</b>	<b>L3</b>	<b>L4</b>	<b>L5</b>	<b>L6</b>	<b>L7</b>	<b>L8</b>	<b>L9</b>	<b>L10</b>	<b>L11</b>	<b>L12</b>
$^{15}\text{N}$ -py	307,6 (-9,8)	316,3 (-1,1)	332,0 (+14,6)	322,3 (+4,9)	323,6 (+6,2)	323,2 (+5,8)	312,2 (-5,2)	321,3 (+3,9)	301,2 (-16,2)	319,4 (+2,0)	325,3 (+7,9)	326,0 (+8,6)

**Tablica D5.** *Kemijski pomaci ( $\delta$  / ppm) signala jezgri  $^{15}\text{N}$ -atoma kod spojeva **K1** – **K12** te razlika u pomacima tih signala nakon kompleksiranja ( $\Delta\delta_{\text{koord}}$  / ppm) izračunata prema relaciji  $\Delta\delta_{\text{koord}} = \delta_{\text{kompleksa}} - \delta_{\text{liganda}}$  (podaci u zagradi).*

Jezgra	Spoj ( $\delta$ / ppm, $\Delta\delta_{\text{koord}}$ / ppm)											
	<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>K4</b>	<b>K5</b>	<b>K6</b>	<b>K7</b>	<b>K8</b>	<b>K9</b>	<b>K10</b>	<b>K11</b>	<b>K12</b>
$^{15}\text{N}$ -py	284,2 (-23,4)	299,2 (-17,1)	322,2 (-9,8)	289,0 (-33,3)	291,8 (-31,8)	289,3 (-33,9)	305,1 (-7,1)	315,7 (-5,6)	299,3 (-1,9)	315,7 (-3,7)	306,1 (-19,2)	312,0 (-14,0)
$^{15}\text{NO}_3^-$	378,6 (+2,4)	376,1 (-0,1)	<i>a</i>	376,3 (+0,1)	376,6 (+0,4)	376,9 (+0,7)	376,3 (+0,1)	376,8 (+0,6)	<i>a</i>	371,5 (-4,7)	376,3 (+0,1)	378,8 (+2,6)

<sup>a</sup>Signal u spektru nije detektiran.

**Tablica D6.** *Kemijski pomaci ( $\delta$  / ppm) signala jezgri  $^{109}\text{Ag}$ -atoma u spektrima spojeva **K1 – K12** te razlika u pomaku njihovih signala ( $\Delta\delta_{\text{koord}}$  / ppm) u odnosu prema pomaku srebrova(I) iona u srebrovom nitratu ( $\text{AgNO}_3$ ) izračunata prema relaciji  $\Delta\delta_{\text{koord}} = \delta_{\text{kompleks}} - \delta_{\text{AgNO}_3}$  (podaci u zagradi).*

Jezgra	Spoj ( $\delta$ / ppm, $\Delta\delta_{\text{koord}}$ / ppm)											
	<b>K1</b>	<b>K2</b>	<b>K3</b>	<b>K4</b>	<b>K5</b>	<b>K6</b>	<b>K7</b>	<b>K8</b>	<b>K9</b>	<b>K10</b>	<b>K11</b>	<b>K12</b>
$^{109}\text{Ag}$	101,4 (+95,2)	116,7 (+110,5)	106,3 (+100,1)	173,0 (+166,8)	181,6 (+175,4)	201,1 (+194,9)	58,4 (+52,2)	52,5 (+46,3)	36,6 (+30,4)	26,9 (+20,7)	112,2 (+106,0)	100,3 (+94,1)

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