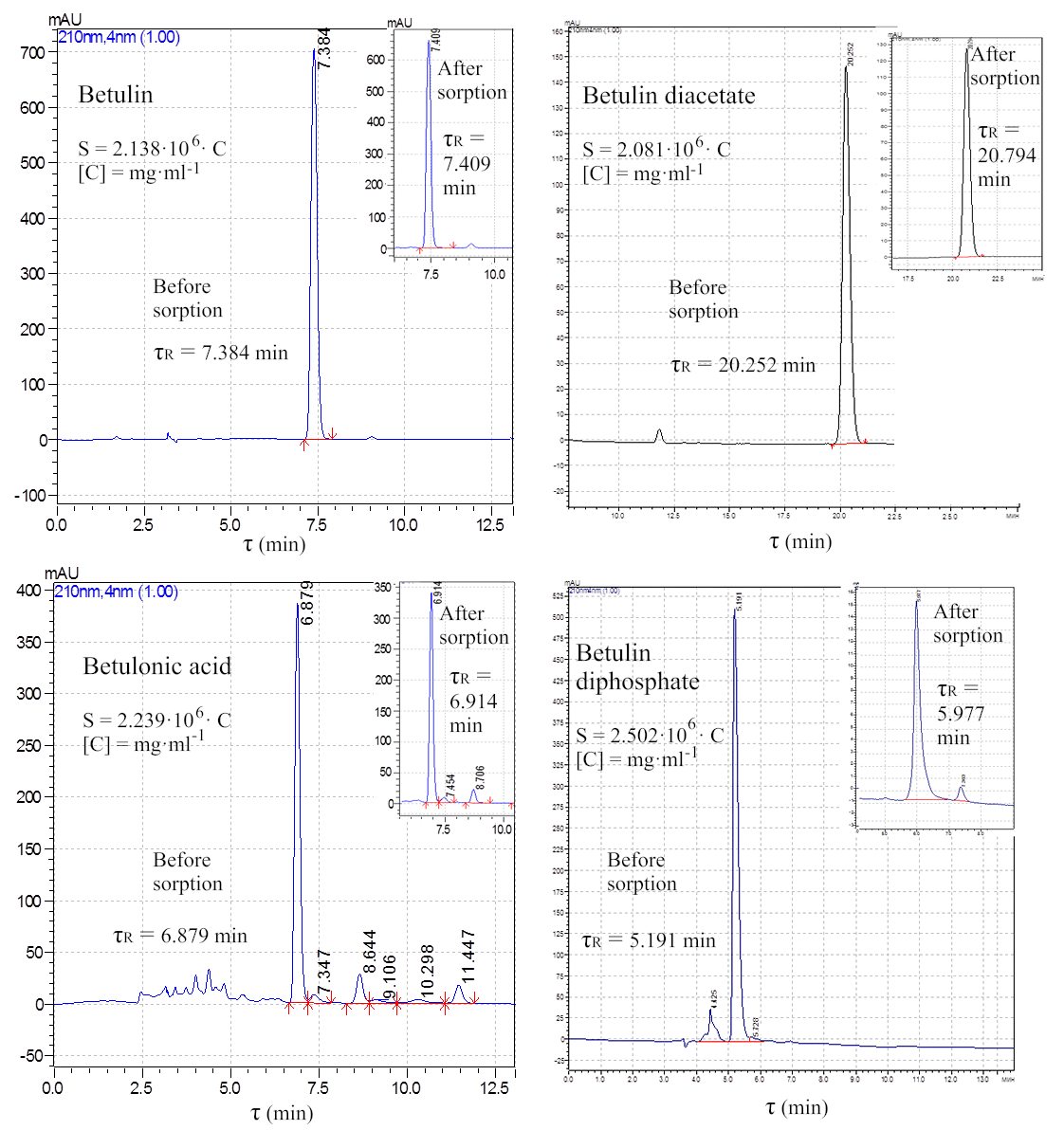
**Figure S1:** HPL chromatograms of initial solutions of betulin, betulin diacetate, betulonic acid and betulin diphosphate (insert – HPL chromatograms after sorption on the ZnO NPs surfase)



**Figure S2:**  FTIR spectra of Betulin, BDA, BA, and BDP



B



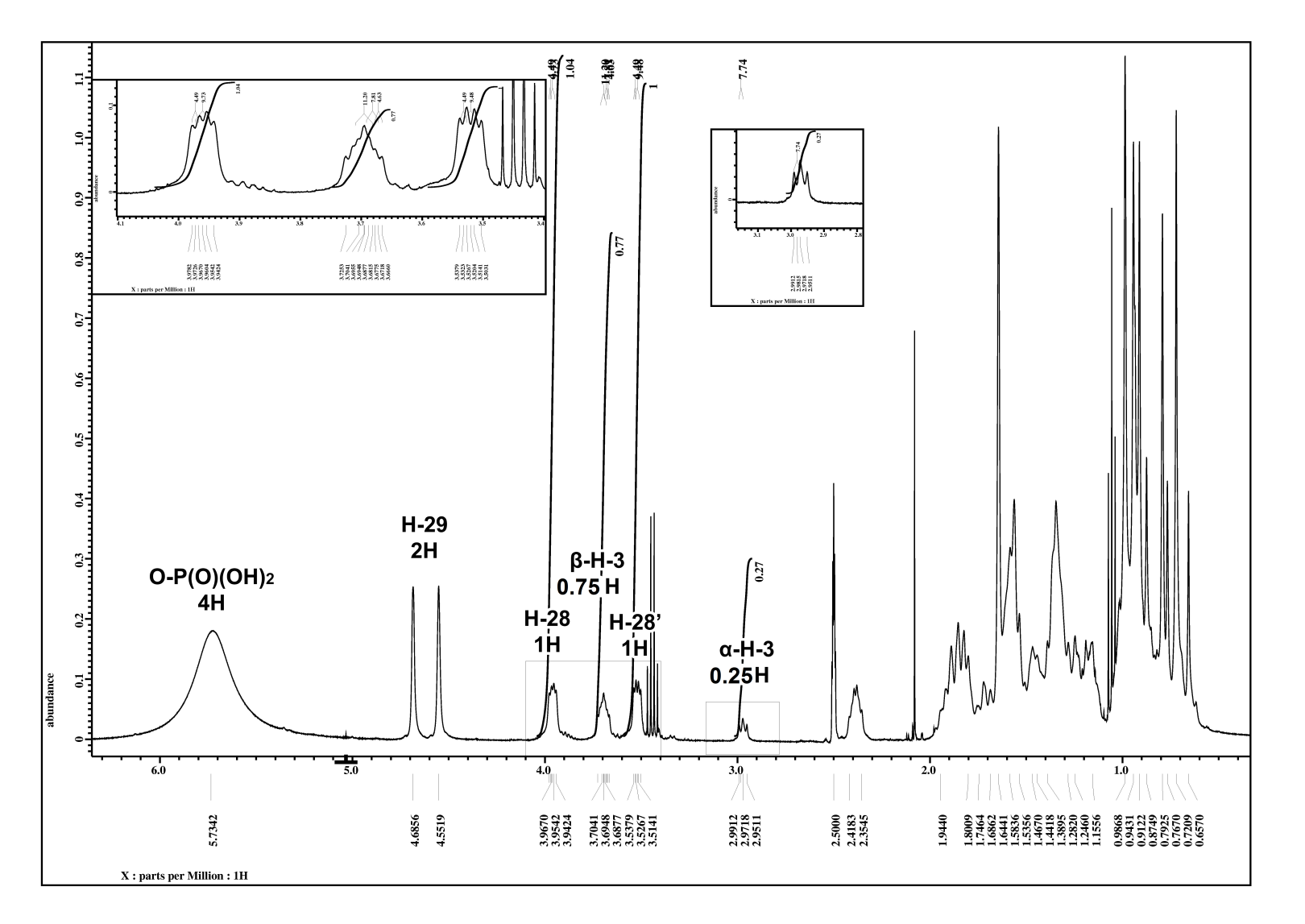
BDA



BDP

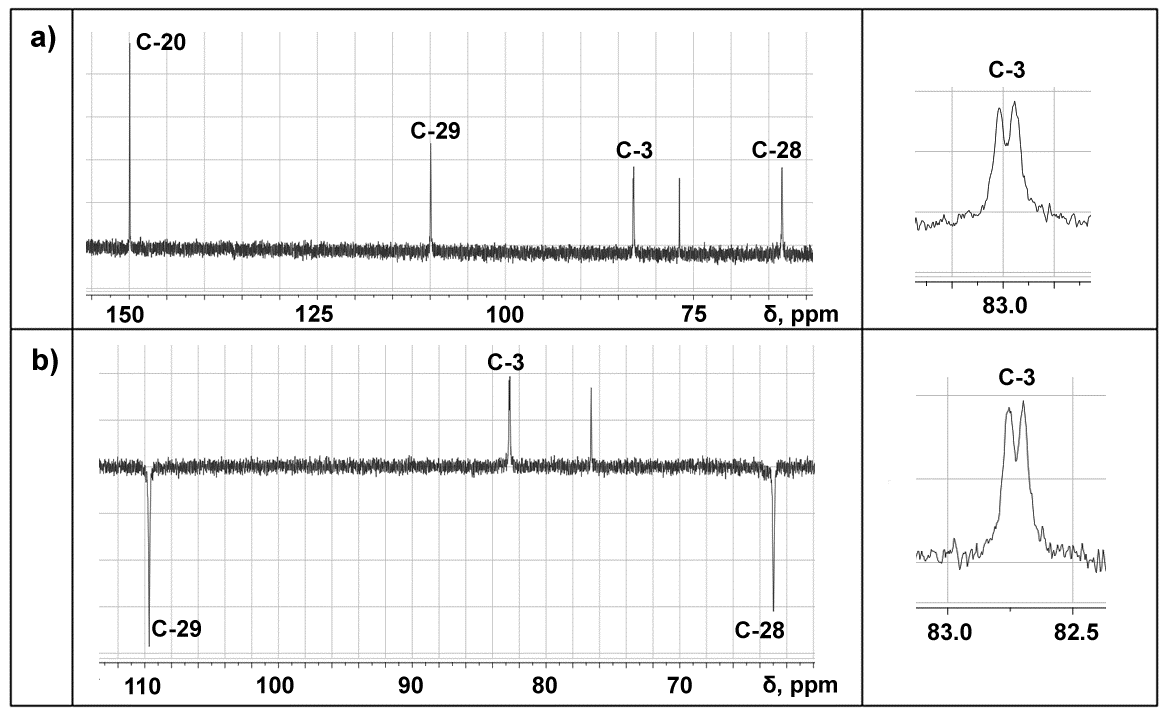
BA

**Figure S3:** 1H-NMR spectrum of **BDP**. DMSO-d6, standard TMS, 400 MHz

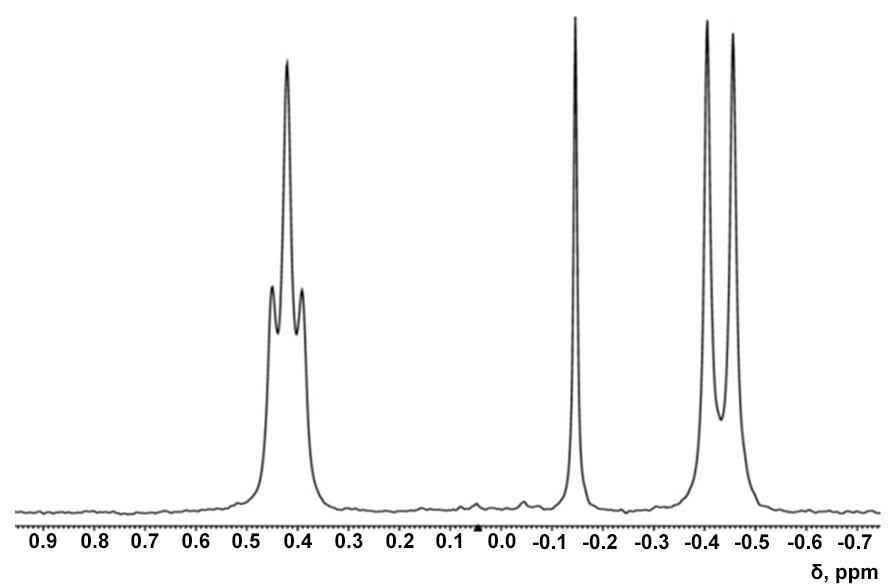


1H NMR (DMSO-d6, 400 MHz) *δ* 0.68-1.99 (42H, m, 6CH3, (CH2)10, (CH)4), 2.35-2.42 (1H, m, H-19), 2.97 (0.25Н, wide t, α-Н-3, *J* = 7.7 Hz), 3.69 (0.75H, ddd, β-H-3 m *J* = 4.6, 7.8, 11.2 Hz ), 3.96 (1Н, dd, H-28, *J* = 9.7, 4.5 Hz) and 3.52 (Н, dd, H-28’, *J* = 9.5, 4.5 Hz), 4.55, 4.69 (2Н, two s, H-29), 5.69 (protons in the phosphate groups О-Р(O)(ОН)2, wide blurred s)

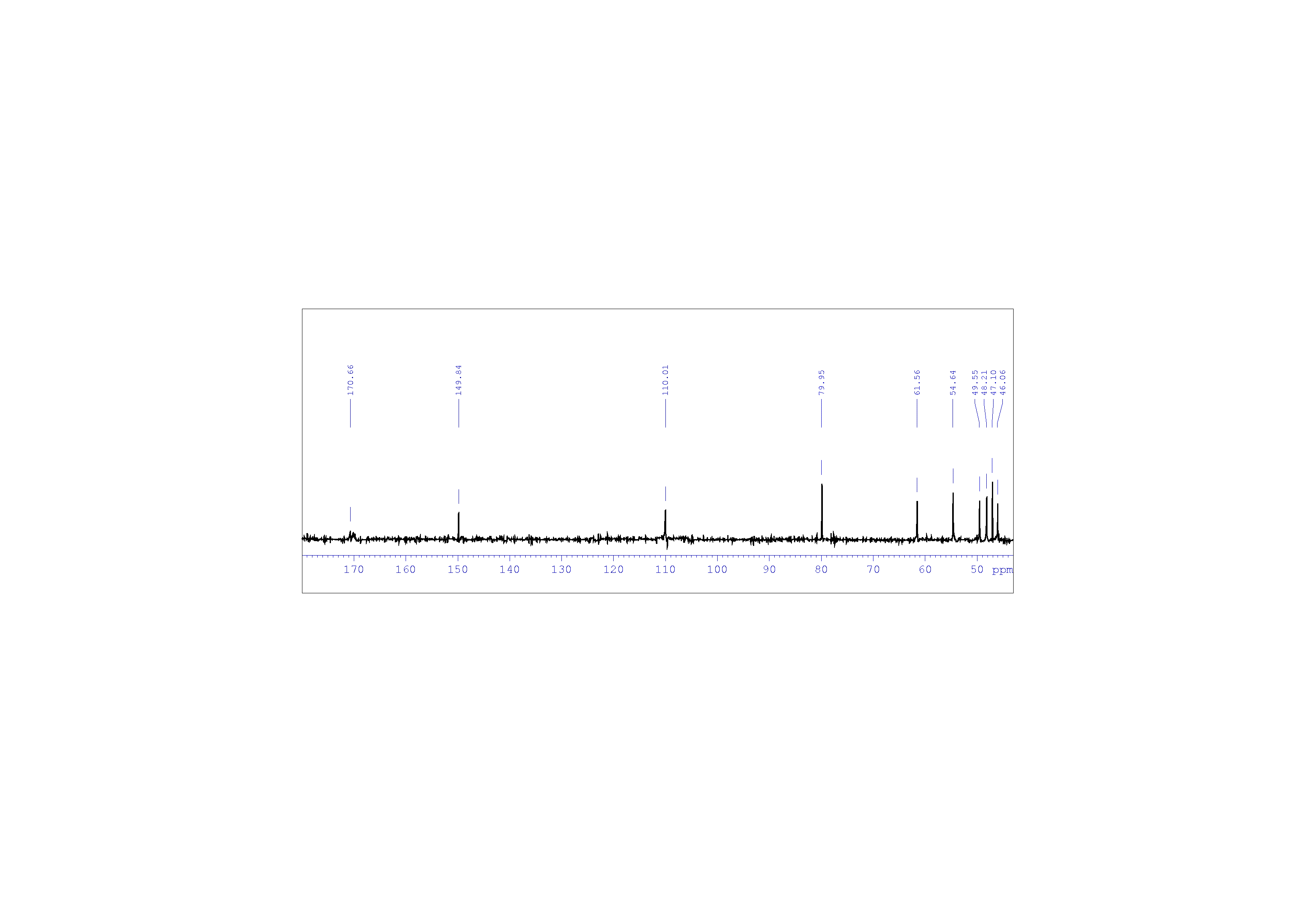
**Figure S4:** 13C-NMR spectrum (**a**) and dept spectrum (**b**) of **BDP** (DMSO-d6, TMS standard)



**Figure S5:** 31P-NMR spectrum of **BDP** (DMSO-d6, standard Ph3P)



**Figure S6:** 13С-NMR spectrum of betulin diacetate



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| --- |
| **Figure S7:** 13С-NMR spectrum of betulonic acid |