Correction to: New crystal structures of fluorinated α -aminophosphonic acid analogues of phenylglycine

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Correction to: Structural Chemistry.

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Corrections are needed to the original version of this article. The in-text citations of figures in the section “NMR spectra characterization” are not in sequential order. Moreover, the sequence of figures. 3–8 does not coincide with that in the text.

– Fig. 3. should show ^1H NMR spectrum, instead in the original paper ^1H NMR spectrum is presented in the Fig. 8.

– Fig. 4. should show ^{13}C NMR spectrum, instead in the original paper ^{13}C NMR spectrum is presented in the Fig. 3.

– Fig. 5. should show 2D NMR ^{13}C , ^1H - HMQC spectrum, instead in the original paper 2D NMR ^{13}C , ^1H - HMQC spectrum is presented in the Fig. 6.

– Fig. 6. should show ^{19}F NMR spectrum, instead in the original paper ^{19}F NMR spectrum is presented in the Fig. 4.

– Fig. 7. should show ^{31}P NMR spectrum, instead in the original paper ^{31}P NMR spectrum is presented in the Fig. 5.

– Fig. 8. should show 2D NMR ^{31}P , ^1H - HMQC spectrum of the compound **1**, instead in the original paper 2D NMR ^{31}P , ^1H - HMQC spectrum is presented in the Fig. 7.

The corrected discussed section should read:

NMR spectra characterization

Due to low solubility in organic solvents, D_2O with one drop of NaOD was used as solvent. ^1H , ^{13}C , ^{19}F and ^{31}P NMR, 2D NMR ^{13}C , ^1H - HMQC and 2D NMR ^{31}P , ^1H - HMQC spectra

of the representative compounds (**1**) are showed. Doublet signal on the ^1H NMR spectrum at 3.75 ppm with $^2J_{(\text{H-P})} = 15\text{--}16\text{ Hz}$, is a characteristic feature of these compounds and has been assigned to the methene hydrogen of the CHP fragment. The exchangeable N-H and OH proton signals appears as broad singlet at 4.68 ppm. The aromatic protons CH_{ar} from phenyl ring resonates in the expected region from 6 to 8 ppm (Fig. 3). As a consequence of proton-proton and proton-fluorine (in compounds **2**, **3** and **4** with substitution of hydrogen atoms by fluorine atoms in aromatic moiety) the multiplicities of these signals are observed. On the $^{13}\text{C}\{^1\text{H}\}$ spectrum (Fig. 4) characteristic doublet at around $\delta = 55\text{ ppm}$ with large value of coupling constant ($^1J_{(\text{C-P})} = 128.5\text{ Hz}$) is generated as a result of interaction of the carbon atom directly related to the phosphorus (CHP). The two-dimensional spectrum ^{13}C , ^1H - HMQC (Fig. 5) confirm correlations of that signal with doublet in proton spectra $^2J_{(\text{H-P})}$. The quaternary carbon atom of trifluoromethyl moiety is visible at 124.54 ppm as doublet of quartets with two coupling constant: first high $^1J_{(\text{C-F})} = 271\text{ Hz}$ and second very low about 1 Hz coupling as probable result from additional correlation with phosphorus atom (Fig. 4-B). In a similar manner resonate carbon atom directly bounded to CF_3 moiety, which was detected also as doublet of quartets at 127.43 ppm and the coupling constants occurs in the range: $^1J_{(\text{C-F})} = 32.0\text{ Hz}$ and $^2J_{(\text{C-F})} = 2.9\text{ Hz}$ (Fig. 4-A). The remaining signals have been assigned to phenyl ring carbon atoms and their multiplicity is associated with the presence of fluoro substituents in aromatic rings. $^{19}\text{F}\{^1\text{H}\}$ NMR spectra affirm presence of fluorine atoms in the structure and resonated in the expected region as multiplets for compounds **2**, **3** and **4** and as singlet for CF_3 moiety for compound **1** (Fig. 6). Fluorine atoms substitution in the aromatic ring contribute to multiplicities of phosphorus signals on the $^{31}\text{P}\{^1\text{H}\}$ NMR spectra and long-range couplings between P-F atoms are very good visible by 4, 5, 6 or even 7 bonds. In the case of compound **1** quartet with low coupling constant of $^7J_{(\text{P-F})} = 2\text{ Hz}$ is observed (Fig. 7). The 2D NMR ^{31}P , ^1H - HMQC spectrum verified interaction of the methene hydrogen ($^2J_{(\text{H-P})}$) with phosphorus atom in CHP skeleton (Fig. 8).

The corrected sequence of the figs. 3–8 should be:

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Fig. 3 ¹H NMR spectrum of the compound 1

Fig. 4 ¹³C{¹H} NMR spectrum of the compound 1. Extension of quartet signals C_{ar}-CF₃ (A) and CF₃-C_{ar} (B) have been showed as blue peaks and pink peaks, respectively

Fig. 5 2D NMR ^{13}C , ^1H – HMQC spectrum of the compound **1**

Fig. 6 $^{19}\text{F}\{^1\text{H}\}$ NMR spectrum of the compound **1**

Fig. 7 $^{31}\text{P}\{^1\text{H}\}$ NMR spectrum of the compound **1**. The long-range couplings between phosphorus and fluorine generate quartet signal

Fig. 8 2D NMR $^{31}\text{P},^1\text{H}$ – HMQC spectrum of the compound **1**

The authors apologize for the oversight and further state that the changes made to the in-texts citations and sequence of figures don't have an impact to the overall outcome of the study.