Electronic Supplementary Material (ESI) for Photochemical & Photobiological Science
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**Figure S1. (Supplementary Material)** - Experimental $^{1}$H-NMR chemical shifts of *1-(3,7-dimethylocta-1,6-dien-3-yl)-4-phenyl-1H-tetrazol-5(4H)-one* (**4a**), recorded in $CD_3OD$.

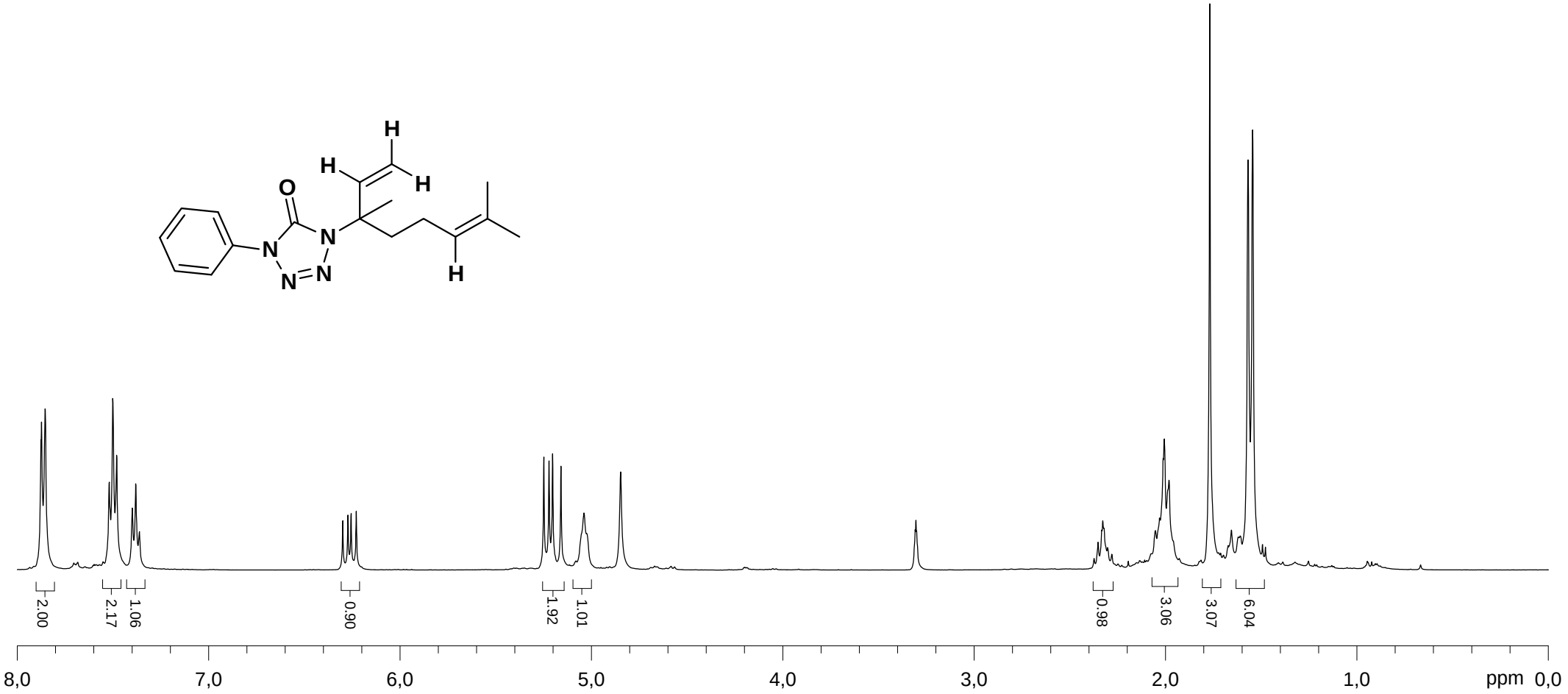

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**Figure S2. (Supplementary Material)** - Experimental $^{1}$H-NMR chemical shifts of *4-(cyclohex-2-enyl)-1-phenyl-1H-tetrazol-5(4H)-one* (**4b**), recorded in $CD_3OD$.

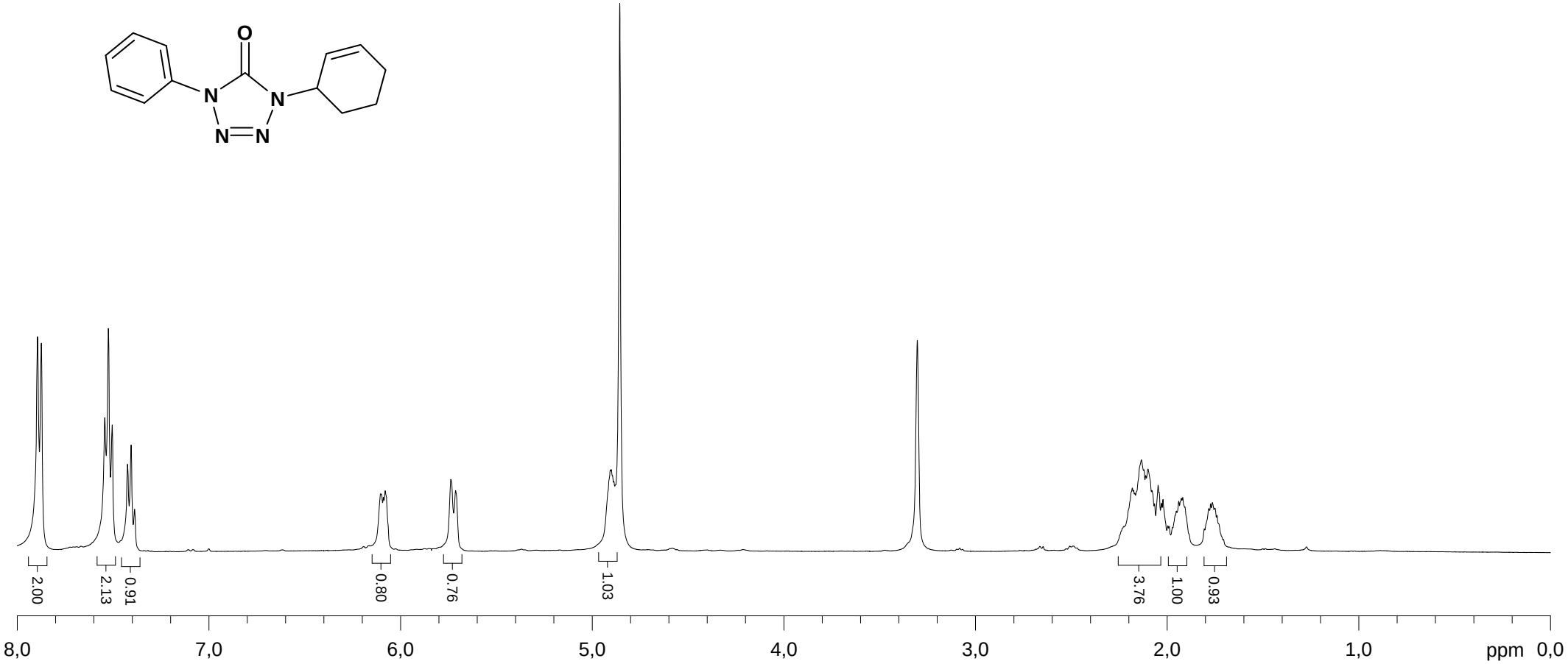

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**Figure S3. (Supplementary Material)** - Experimental $^{1}$H-NMR chemical shifts of *4-(3-methylcyclohex-2-enyl)-1-phenyl-1H-tetrazol-5(4H)-one* (**4c**), recorded in $CD_3OD$.

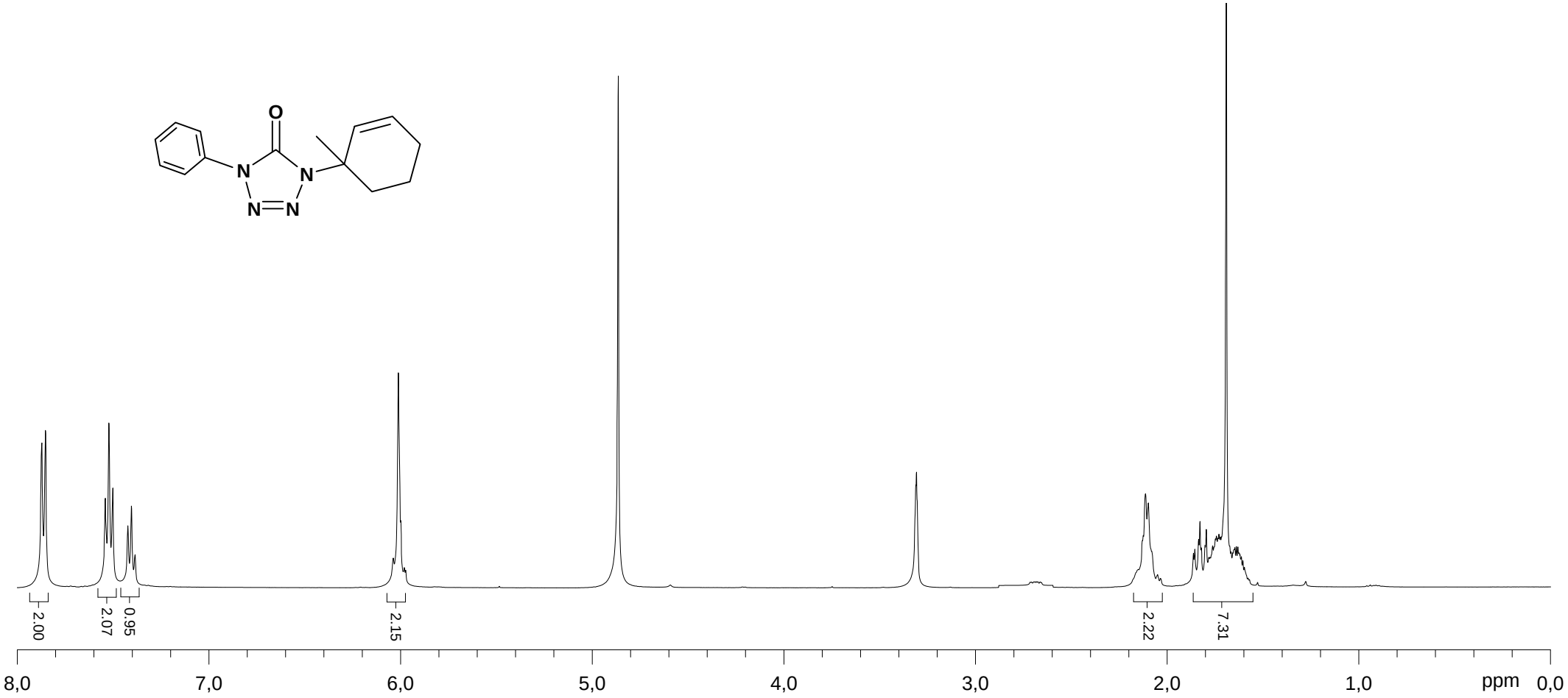

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**Figure S1. (Supplementary Material)** - Experimental $^{1}$H-NMR chemical shifts of two conformers (distended configuration and a π–π stacking interation) of *4-methyl-4-(4-methylpent-3-enyl)-1-phenyl-3,4-dihydropyrimidin-2(1H)-one* (**10a**). Recorded in $CD_3OD$

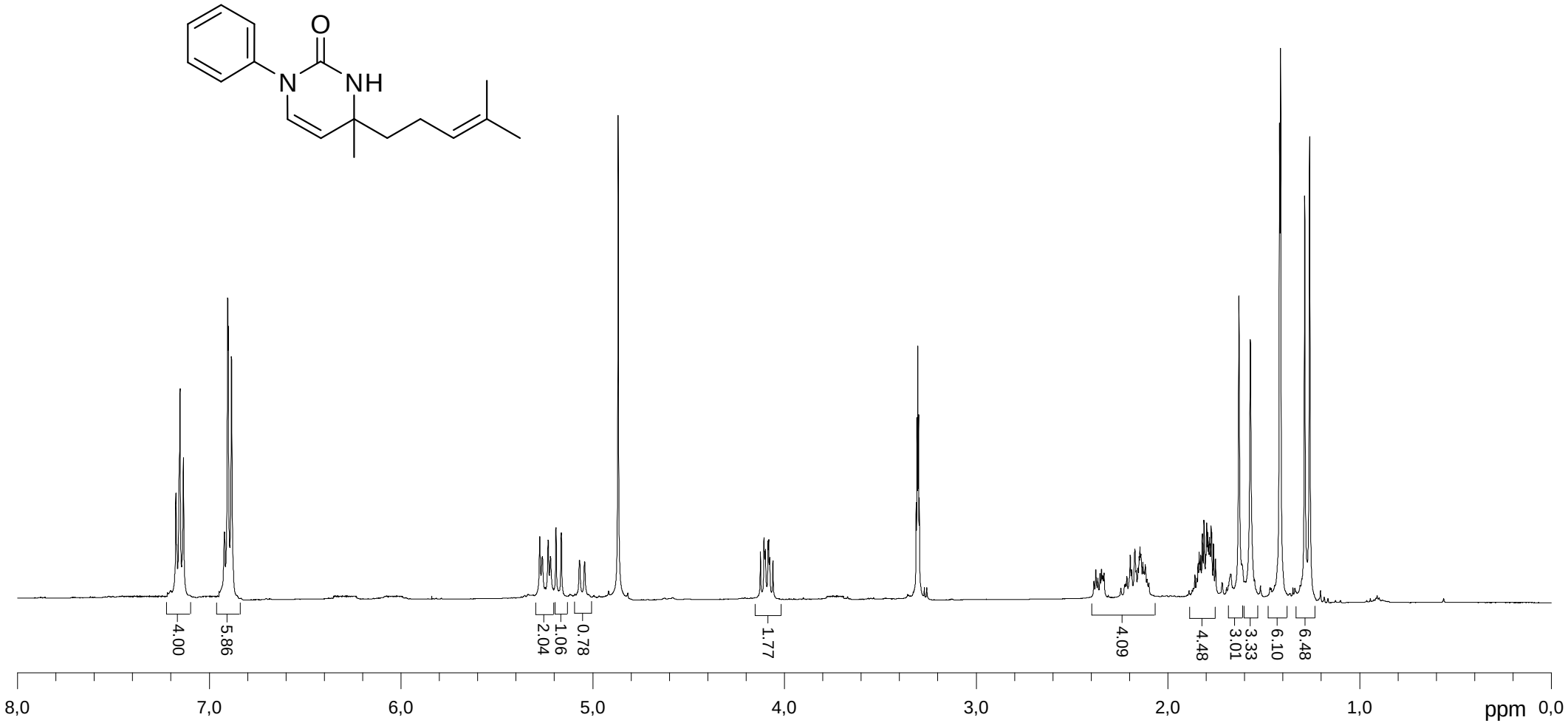

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**Figure S5. (Supplementary Material)** - Experimental $^{1}$H-NMR chemical shifts of *1-phenyl-3a,4,5,6-tetrahydro-1H-benzoimidazol-2(3H)-one* (**10b**), recorded in $CD_3OD$.

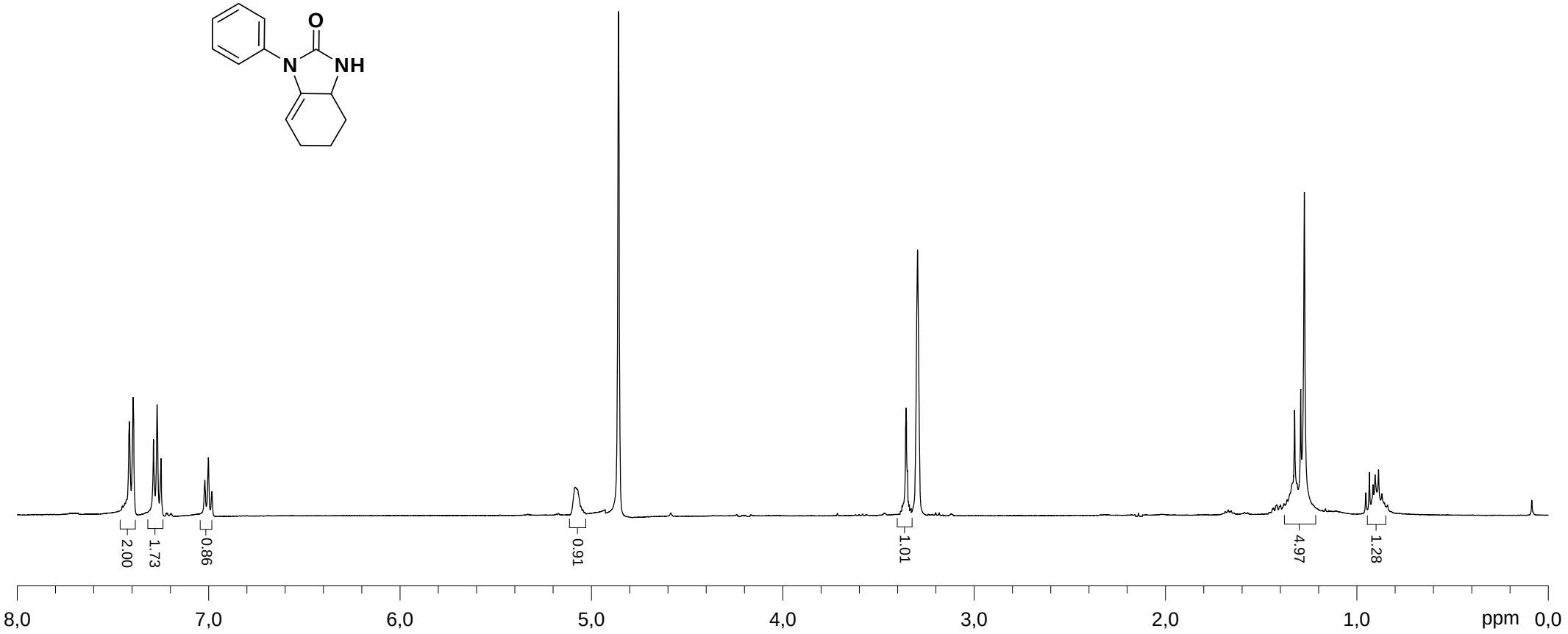

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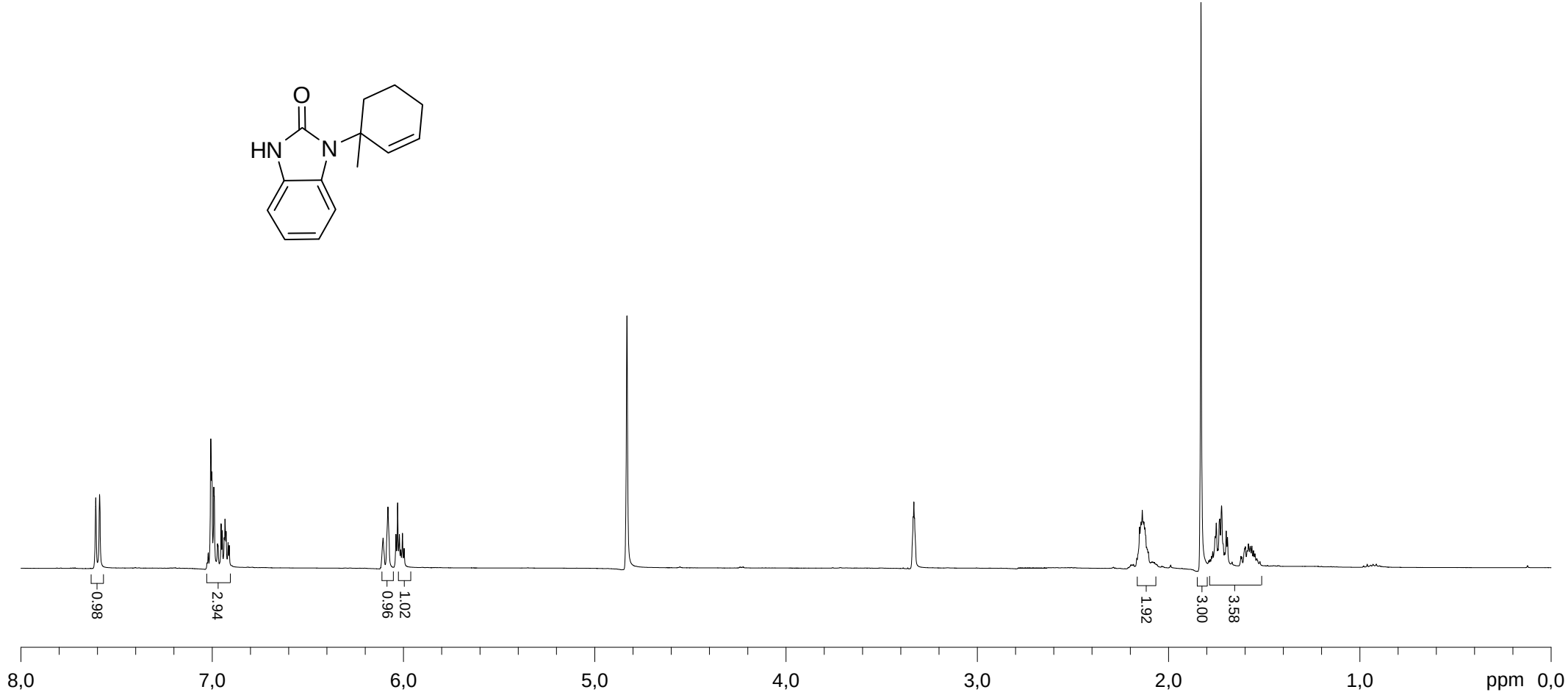
**Figure S6. (Supplementary Material)** - Experimental $^{1}$H-NMR chemical shifts of *3-(1-methylcyclohex-2-enyl)-benzoimidazol-2(1H)-one* (**11**), recorded in $CD_3OD$.



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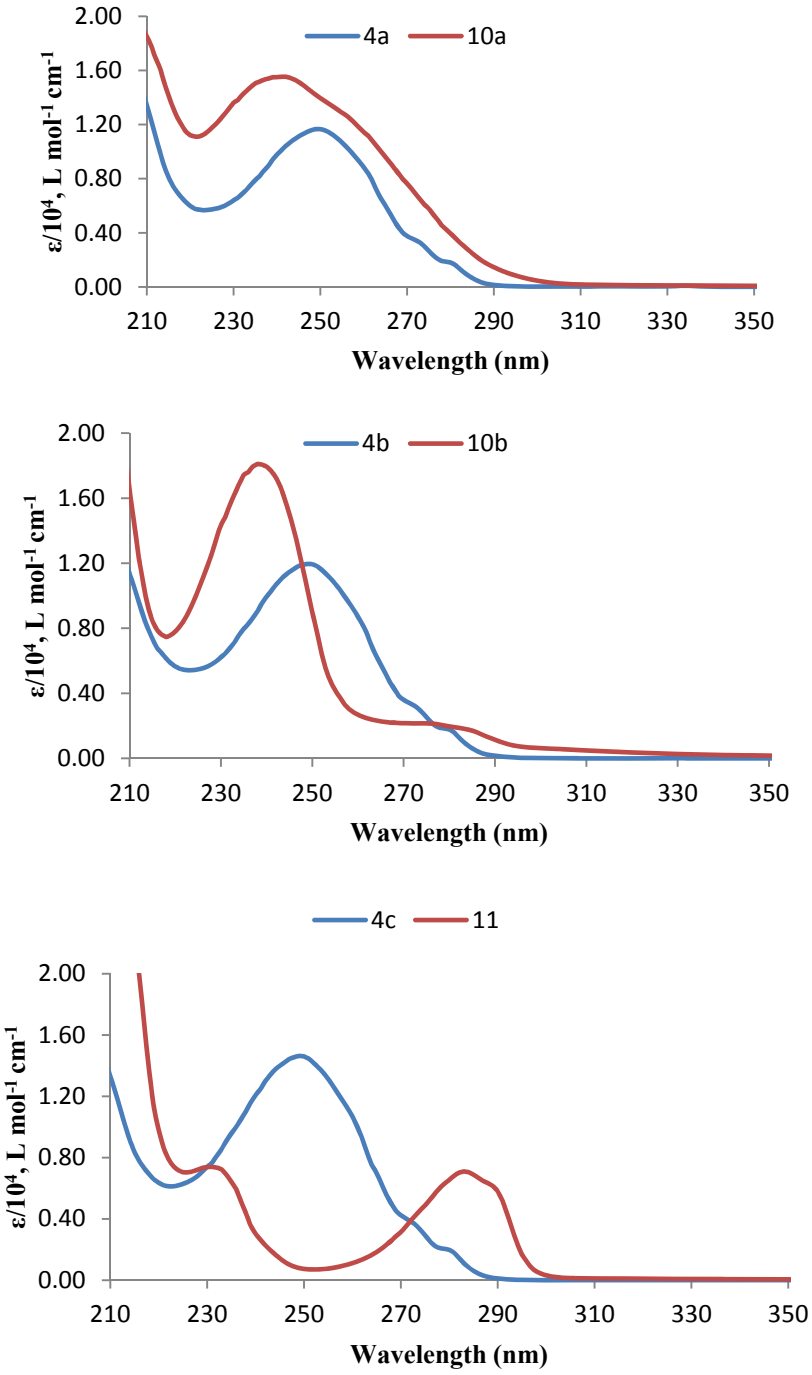


**Figure S7**. **(Supplementary Material)** - Extinction coefficients (ε), as function of wavelength, for tetrazolones **4a-c** (blue line) and corresponding photoproducts, pyrimidinones **10a**, **10b** and benzimidazolone **11** (red line), in methanol.

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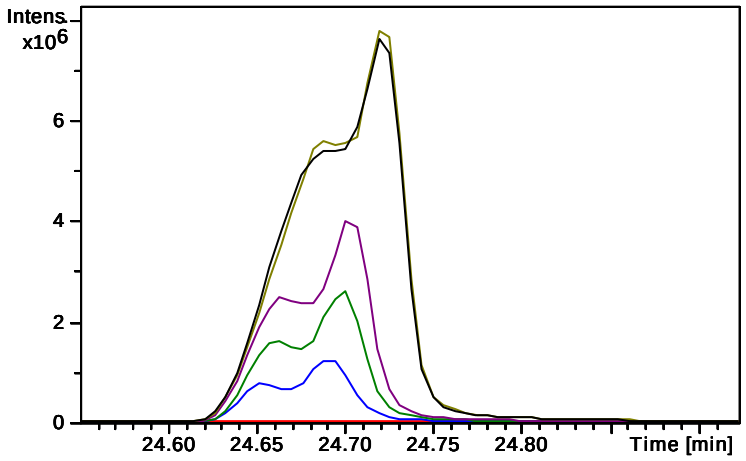


**Figure S8**. **(Supplementary Material)** - GC analysis of the photoproduct *4-methyl-4-(4-methylpent-3-enyl)-1-phenyl-3,4-dihydropyrimidin-2(1H)-one* (**10a**). The peak shoulder probably results from the presence of two conformers one with a distended configuration of the nerol residue, and other with the nerol residue in a orientation parallel to the tetrazole moiety.

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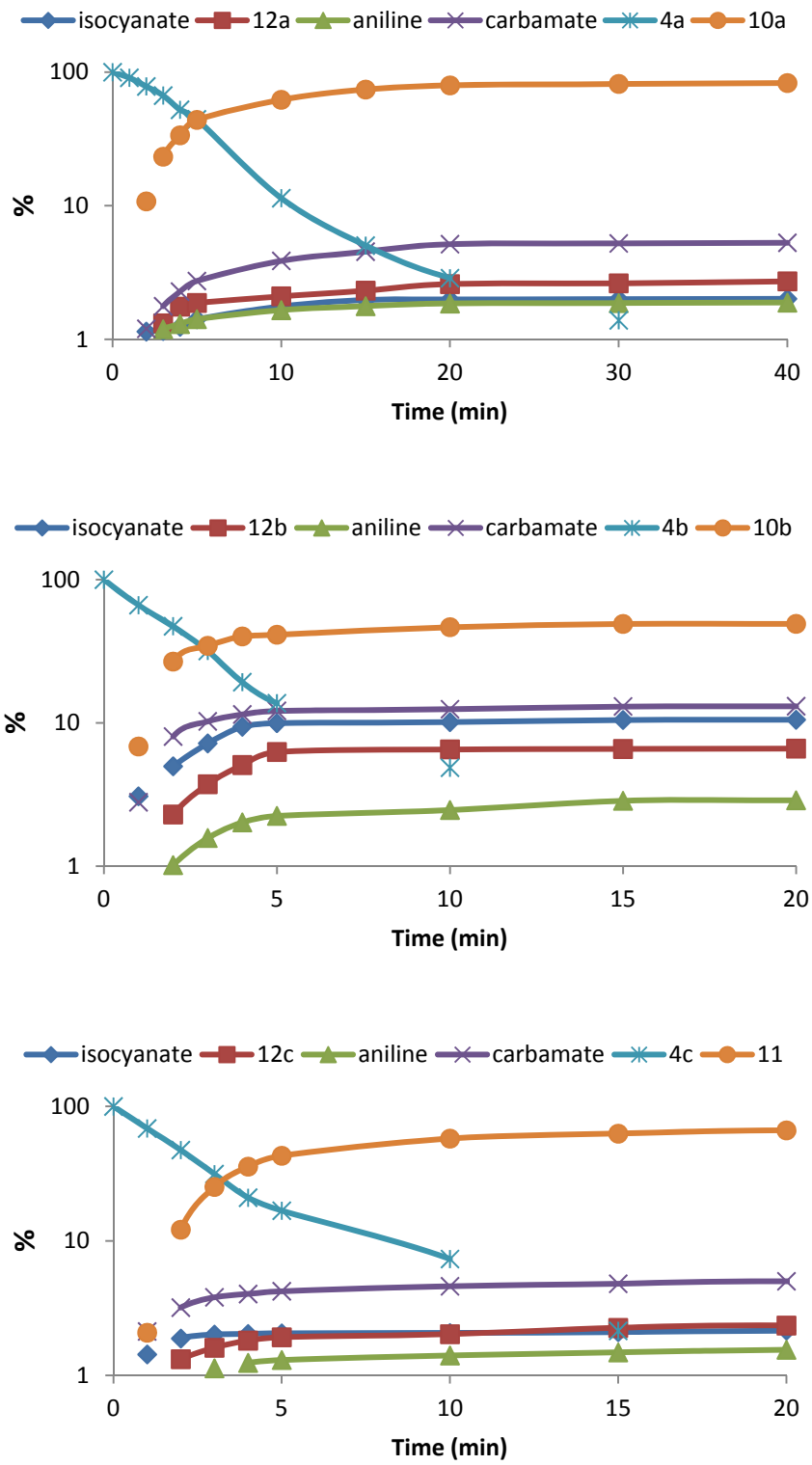


**Figure S9**. **(Supplementary Material)** - Variation of the amount of reagents and photoproducts during irradiation of tetrazolones **4a-c** (λ=254nm) in methanol ($1x10^{-4}$ M). The amount of reagent before irradiation was assumed to be 100%. The yields of different photoproducts were monitored by gaseous chromatography. Note that the ordinate scale is logarithmic.

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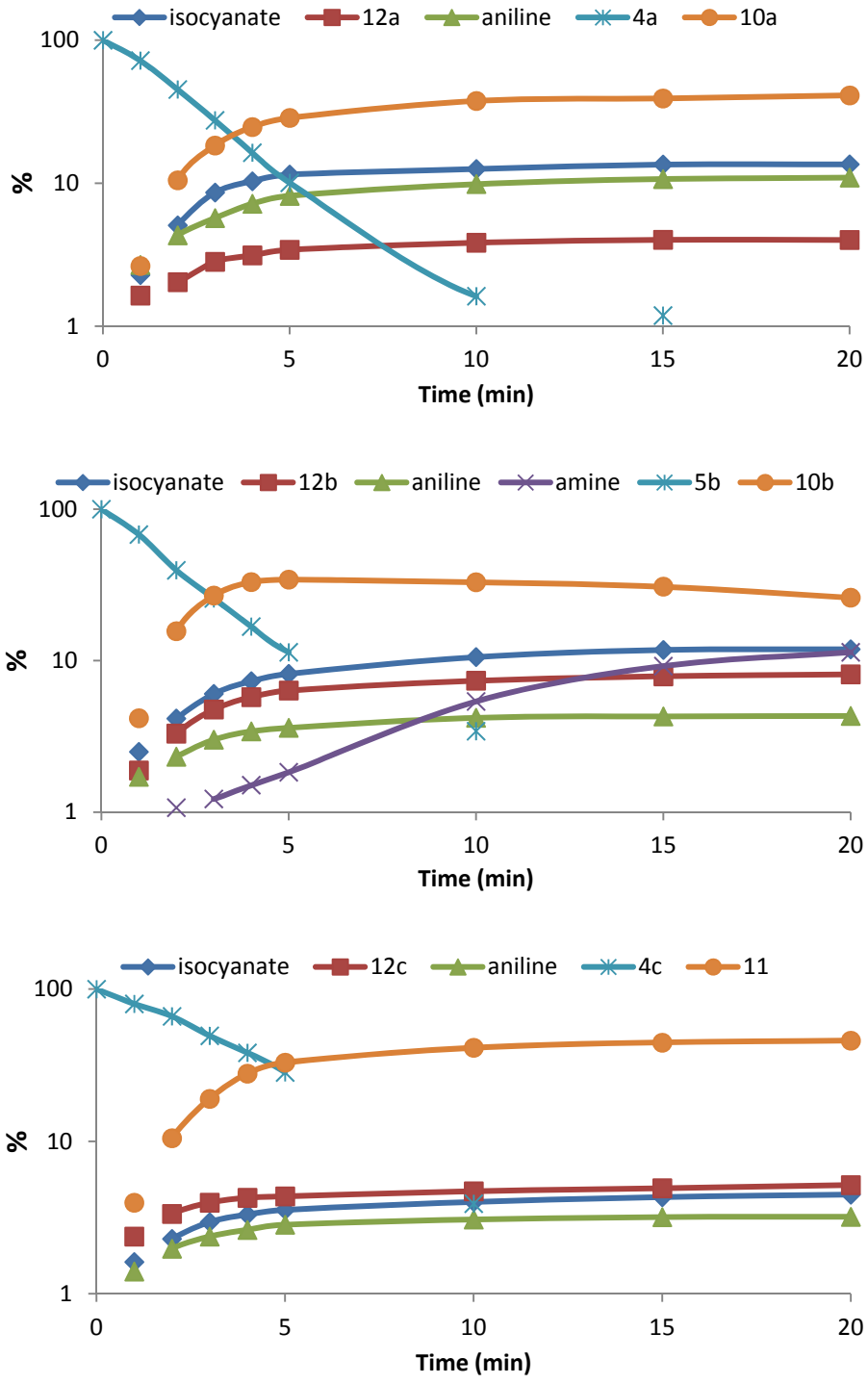


**Figure S10**. **(Supplementary Material)** - Variation of the amount of reagents and photoproducts during irradiation of tetrazolones **4a-c** (λ=254nm) in acetonitrile ($1x10^{-4}$ M). The amount of reagent before irradiation was assumed to be 100%. The yields of different photoproducts were monitored by gaseous chromatography. Note that the ordinate scale is logarithmic.

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**Table 1**. Extinction coefficients values for tetrazolones **4a-c** and photoproducts **10a,b** and **11**, calculated at $\lambda_{max}$.

| Compound | $\lambda_{max}$ (nm) | $\varepsilon/10^4$ (L.mol$^{-1}$.cm$^{-1}$) |
|---|---|---|
| 4a | 249 | 1.167 |
| 4b | 249 | 1.195 |
| 4c | 249 | 1.463 |
| 10a | 241 | 1.553 |
| 10b | 238 | 1.810 |
| 11 | 231; 283 | 0.739; 0.709 |