## The Structure Characterization of Molecules with ESR Spin Labels of Pyroline and Piperidine Type

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A series of molecular structures bearing ESR spin labels of pyroline and piperidine types has been determined. The review of all structures shows common features of hydrogen bonds formed by nitroxyl oxygen atoms and neighboring hydrogen donors. In addition to molecules bearing a single spin label (SSL) [1], the list contains a number of double spin labels (DSL) and three spin labels (TSL). Intentionally rigid spacers bearing the spin labels fix the inter-radical distance in interval 6-30 Å in case of DSLs . The spin label moiety itself remains virtually untouched by any external influences as the chemical composition of spacer, crystal packing, hydrogen bonds, etc.

The double spin label [3,3'-oxybis(ethyleneoxycarbonyl)bis(2,5dihydro-2,2,5,5-tetramethyl pyrrol-1-yloxyl)], i.e. DSL with a poly(ethyleneoxide) spacer was prepared as a paramagnetic tracer for ESRI studies of diffusion processes in polymer gels and concentrated polymer solutions [2]. It is of special interest also for its phase transition at 248 K where the molecules lose their two fold symmetry and the space group transfers with lowering the temperature from Iba2 to Pbc2<sub>1</sub> keeping the molecular stacking virtually unchanged.

This research was supported by the Academy of Sciences of the Czech Republic (AVOZ 405000505)

[1] Dušková J., et al., Acta Cryst., 2001, E57, 85-86. [2] Pilař J., et al., Macromolecules, 1999, 32, 8230-8233.

Keywords: spin label, organics, x-ray structure