**Interactions of spin labelled _-cyclodextrin with different guests**

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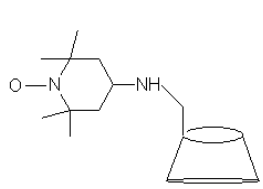
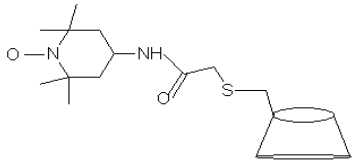
The ability of natural and/or chemically modified cyclodextrins (CDs) to form inclusion complexes is well documented in the literature. Host-guest interactions of CDs have been studied by a variety of methods [1].

EPR is an appropriate method to study this type of interaction only if at least one component of the system is paramagnetic and hence the papers in this area regard mainly the interactions between unmodified cyclodextrin and different types of nitroxides [2-5].

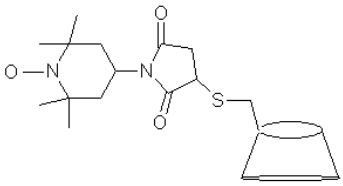
The aim of this project was to prepare a series of spin-labelled CDs and use EPR to study their host properties. We have synthesised three spin-labelled CDs (**1**-**3**), with different linkage between the cyclodextrin and the paramagnetic moiety.




**1**




**2**




**3**

The EPR parameters of these three compounds in aqueous solutions are similar, with $a_N$ values close to that of aqueous TEMPO and different _ values ($3.8\times10^{-10}$ s for **1**, $3.6\times10^{-10}$ s for **2** and $6.3\times10^{-10}$ s for **3**). We studied interactions of these compounds with diamagnetic and paramagnetic probes, e.g., phenolphthalein, 1-adamantanamine and 1-adamantane-amido-TEMPO (as CDs are known to bind strongly adamantane derivatives and phenolphthalein [1]). Analysis of the experimental EPR parameters and UV-Vis spectra recorded for solution with different ratio between host and guest type molecules led to the conclusion that all three compounds bind guests with lower binding constant than unmodified _-CD, and the interactions have small effect on EPR parameters of compounds **1**-**3**.

**References**

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