Electrochemical Synthesis of Stereoisomeric 1,2-bis (2-spirobifluorenyl)1,2-ethanediols.

Giulia Fioravanti,* Liliana B. Rampazzo
and Leonardo Mattiello

Dept.of ICMMPM, Sede Chimica,
University of Rome “La Sapienza”,
Via del Castro Laurenziano 7, 00161, Roma (Italy)

Organic compounds bearing a spiro carbon, especially 9,9’-spirobifluorene (SBF) and derivatives, are particularly suited to meet some properties useful for molecular scale electronics and other applications in the field of nanotechnologies (1), (2). Such interest is documented by the exponentially increase of the scientific and technical literature on the subject (3). Several years ago we reported that new 1,2-bis(2-spirobifluorenyl) ethanediols could be conveniently synthetized via electrochemical reduction *e.g.* of 2-acetyl -SBF (4). We report here about some particular aspects of the electrochemical synthesis of *meso* and dl 1,2-(2-spirobifluorenyl) 1,2-ethanediols, starting from 2-formyl-9.9’-spirobifluorene (5). The assignement of *meso* and dl stereochemistry of the diols obtained was founded on the O*H* and C*H* signals in the ^{1}H nmr spectra; in fact, for the O*H* signals they were consistent with the preferred conformation dictated by the intramolecular hydrogen bond for the d or l compound in the dl mixture obtained (4).

The preferred conformations of *meso* and d (or l) diols seem in turn to be controlled by the trans position of the aromatic part of the molecule, (see Figure). Repeated preparative cpe experiments gave a de in favour of the dl mixture. These findings may be relevant as far as the self-assembling of the diols is concerned.

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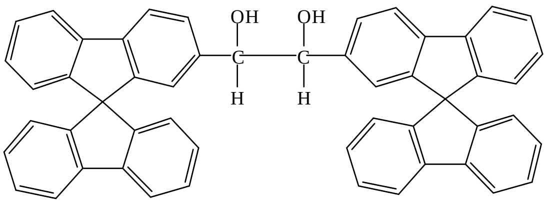

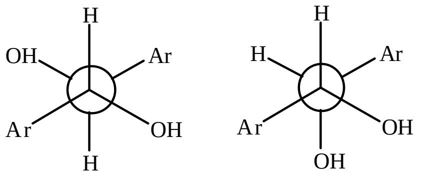

meso dl

Ar = 2-(9,9'-spirobi[9H]fluorenyl)