

SYNTHESIS AND CHARACTERIZATION OF NOVEL PYRENE AND PHENOTHIAZINE BASED BUILDING BLOCKS FOR ORGANIC SOLAR CELLS AND MOLECULAR ELECTRONICS

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The development of the field of Organic Solar Cells (OSCs) represents a relevant solution to the problem of the increasing demand of energy due to the low cost, efficient power conversion and the access to renewable energy [1]. Pyrene derivatives with high tendency to form π -stacking associations and significant optoelectronic properties are good candidates for the obtaining of components of organic solar cells (OSCs). In this context, we considered of interest to design, obtain and investigate donors of types I and II (Figure 1).

We present herein the synthesis, structure and properties of macrocycles with 10*H*-phenothiazine units of type III having high ability to form host-guest supramolecular architectures with cations, anions and neutral molecules. The cyclophane exhibiting nitro groups, in the complexation reactions with M^{2+} cations, behaves as a XOR logical gate

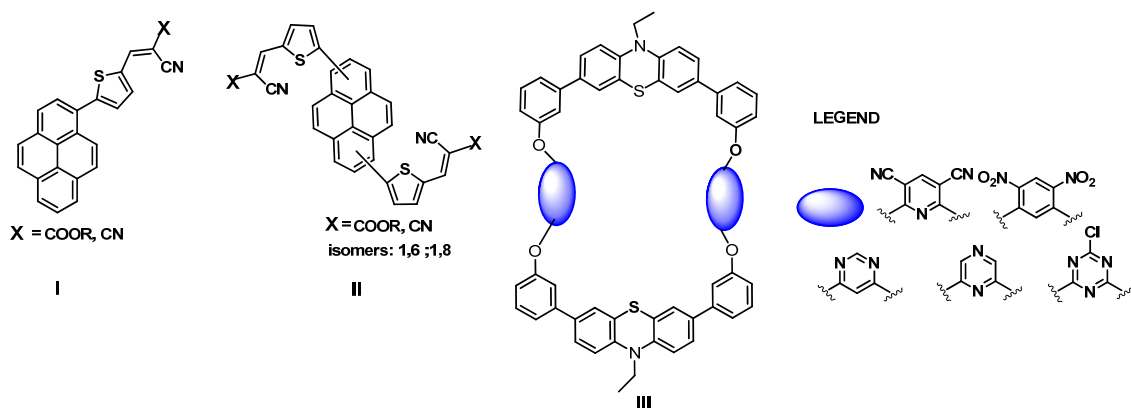


Figure 1. Representation of the investigated compounds

The structures of all obtained compounds were investigated by NMR spectroscopy, MS, UV-VIS, and fluorescence spectroscopy, or/and CV (cyclic voltammetry).