

Kinetics of adsorption of water soluble polyaniline nanofibers in nanostructured thin films

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Polyaniline (Pani) is one of the most promising conducting polymers for thin film applications due to its chemical stability and possibility of control over electrical properties upon reversible doping/dedoping chemistry. Polymeric thin films can be assembled using self-assembly (SA) techniques, which have been considered powerful tools for developing nanostructured layered composites with control at the molecular level. In this study we report a simple method to obtain water soluble Pani nanofibers by interfacial polymerization, as well as its immobilization in the form of SA thin films. The Pani nanofibers exhibited a higher solubility if compared to polymers synthesized by conventional synthetic routes. Figure 1a shows the Pani fibers, as obtained by TEM. The immobilization of Pani fibers on quartz and glass substrates was monitored using UV-Vis spectroscopy, as shown in figure 1b. Details on the kinetics of Pani adsorption will also be discussed.

Keywords: Polyaniline, Nanofiber, Self-assembly, Interfacial polymerization

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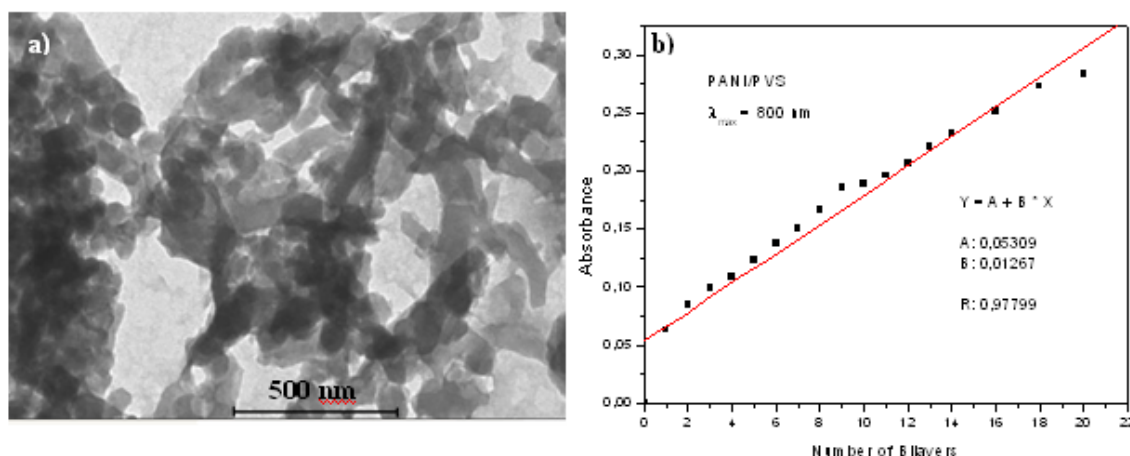


Fig. 1: a) TEM image of the PANI fibers. b) UV-Vis absorbance at 800 nm as a function of number of PANI/PVS bilayers.

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