Flexible and electrically films of intrinsically conductive polymers can serve as promising platforms for the development of novel multifunctional materials. In this sense, they could contribute to the progressive miniaturization of electronic or optical devices used to detect environmental pollutants or valuable biomacromolecules (nucleic acids, antibodies, etc.). In this work, we have prepared nanostructured films of polyaniline (PANI) on polyester foils (FILIPERSON) and evaluated their physical-chemical properties and morphological features through UV-Vis spectroscopy, contact angle measurements and scanning electron microscopy. The resulting films exhibited both a uniform deposition of the PANI nanostructured particles that were formed during the synthesis (which occurred under low temperature and dilute concentrations conditions) and wettability properties that could be adjusted through controlled changes of pH. Our strategy to develop a PANI-based platform for detecting infectious diseases consisted in first immobilizing a DNA probe atop of it and then depositing the sample containing the target DNA sequence to be hybridized. To check how efficient would be this methodology, we employed a commercial DNA dye (Sybr Green, ThermoFisher) which exhibits an enhanced fluorescence when in presence of double stranded DNA chains. In this manner, we were able to optimize the procedure and then confirm the occurrence of an effective DNA probe immobilization through UV-Vis spectroscopy and fluorescence microscopy. Our preliminary results indicate that this promising platform could be employed for the design of novel devices for the rapid diagnosis of diseases such as ZIKA and leishmaniasis, among others.

**Keywords:** Flexible electronics, Transparent conducting films, DNA immobilization

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