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EVALUATION OF THE DIFFUSION GOLD NANOPARTICLES IN FILMS OF WEAK POLYELECTROLYTES

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The polyelectrolytes multilayers (PEM) are manufactured via sequential adsorption of weak polyelectrolytes from aqueous solutions based on electrostatic interaction of oppositely charged polymers. Metal containing polymeric compounds are of particular interest to the production of materials with electrical interface and optical properties. Some works have shown drastic changes in the thickness and roughnesses of an adsorbed layer that can be induced by pH adjust of the electrolytic solution and also influence the size and distribution of nanoparticles in the film. In this sense, the objective of this study was to obtain thin films of weak polyelectrolytes containing gold nanoparticles and analyze the distribution of these gold nanoparticles before and after acid attack. The characterization was performed using UV-Vis, AFM, XRD and TEM. These techniques allowed us to understand the process of diffusion of nanoparticles in the films. The techniques of UV-Vis and XRD was confirmed the presence of gold in the films, the AFM images were used to analyze the morphology of the films and check the behavior of acid attack out before the diffusion. The TEM corroborates for a better understanding of the adsorption of nanoparticles in the film.