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Abstract	:	Polyaniline (PANI) is a conductive polymer easily converted into a conducting state. However, its limited mechanical properties have generated interest in fabricating PANI composites with other polymeric materials. In this study, a PANI–prevulcanized latex composite film was synthesized and fabricated in two phases following chronological steps. The first phase determined the following optimum parameters for synthesizing nanosized PANI, which were as follows: an initial molar ratio of 1, a stirring speed of 600 rpm, a synthesis temperature of 25 °C, purification via filtration, and washing using dopant acid, acetone, and distilled water. The use of a nonionic surfactant, Triton X-100, at 0.1% concentration favored PANI formation in a smaller particle size of approximately 600 nm and good dispersibility over seven days of observation compared to the use of anionic sodium dodecyl sulfate. Ultraviolet–visible spectroscopy (UV-Vis) showed that the PANI synthesized using a surfactant was in the emeraldine base form, as the washing process tends to decrease the doping level in the PANI backbone. Our scanning electron microscopy analysis showed that the optimized synthesis parameters produced colloidal PANI with an average particle size of 695 nm. This higher aspect ratio explained the higher conductivity of nanosized PANI compared to micron-sized PANI. Following the chronological steps to determine the optimal parameters produced a nanosized PANI powder. The nanosized PANI had higher conductivity than the micron-sized PANI because of its higher aspect ratio. When PANI is synthesized in smaller particle sizes, it has higher conductivity.