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Synthesis, characterization, and antiplasmodial activity of polymer-incorporated aminoquinolines

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Abstract

In this research, aminoquinoline compounds were synthesized, characterized, and incorporated into watersoluble polymers to form conjugates. The conjugates were characterized by X-ray diffraction, thermal gravimetric analysis, scanning electron microscope, Fourier transform infrared spectroscopy, and nuclear magnetic resonance spectroscopy to confirm the successful incorporation of the aminoquinoline compound on to the polymer. The synthesized conjugates were screened for in vitro antiplasmodial activity in triplet test against chloroquine-sensitive strain of Plasmodium falciparum and chloroquine drug was used as a reference drug in all the experiments. A full dose–response was performed to determine the concentration inhibiting 50% of parasite growth (IC50 value). Polymeric conjugates containing 3-diethylamino-1-propylamine solubilizing units were found to be most active against the chloroquine-sensitive strain of P. falciparum.