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Utilization of solution plasma process for the production of nano-pharmaceuticals

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Solution Plasma Process (SPP) is a physical method used for generation of nanomaterials in general and biomaterials in particular. We elaborated utilization of chitosan as matrix of nano-biocomposites using SPP. Polymer-silver nanoparticles biocomposites were synthesized by discharging plasma using a pulsed unipolar power supply into solutions of selected and AgNO₃. 3D scaffolds of the biocomposites were prepared by lyophilization and cross-linked by UV irradiation. Synthesis and microstructures of the biocomposites were characterized using UV-Vis spectroscopy, FTIR, FE-SEM equipped with EDS and TEM analysis. The biocomposites showed anti-oxidant activity and also showed anti-microbial activity against various pathogens with much lower inhibitory concentration. The results also proved much more effective anti-microbial activity of the nano-biocomposites. Therefore, the silver nano-biocomposites synthesized by one-step eco-friendly SPP have potential application as topical anti-microbial agents in the modern medicine. SPP method can also be utilized as degradation of polymers such as bioavailability of effective materials with anticipated molecular weights and sizes could be also achieved by SPP. High molecular weight was degraded into LMW for biomaterial application such as DDS by discharging plasma using a pulsed power supply into polymer solution. Color changes, viscosity, pH, degradation percentage. Quantitative and qualitative assays were performed to characterize polymer degradation using gel permeation chromatography, zeta potential analysis, dynamic light scattering and FTIR and UV-Vis spectroscopy. SPP is an inevitable and novel approach in nano-pharmaceuticals and polymers adoptable for facile, reliable, economic, and eco-friendly production of desirable, pure, and stable materials for potential applications in nano-medicine.

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The use of inhaler devices by Libyan asthmatic patients: Evaluation of community pharmacists' counseling capability and patients perspective and adherence study

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Asthma is one of the major health problems worldwide, and inhalation therapies are central in its management. Good inhalation technique is essential for optimum pharmacotherapy and minimum health care costs. Community pharmacists have become more involved in the care of asthma patients. However, data regarding the intervention of Libyan pharmacists in the management of asthma are scarce. Thus, the aims of this study were to evaluate community pharmacists' practical knowledge and skills of demonstrating proper inhalation technique of asthma inhaler devices available in Tripoli city, and to investigate counseling skills of pharmacists on asthma devices and asthma medications in general. Other aims for the current study were to explore the perspectives and management adherence by asthmatic patients. Two hundred community pharmacists were interviewed in 60 private pharmacies and 1 hospital pharmacy located in Tripoli areas. Asthma patients (n=85) also participated in this study. The study was carried out for 16 weeks and four asthma devices were tested (MDI, MDI with a spacer, Turbuhaler, and Diskus). Mystery patients and face-to-face interview studies were conducted. The basic steps of using MDI were illustrated to patients by 50% of pharmacists. Only (39%) of them advised their patients about how to use MDI with a spacer and poorly demonstrated for most steps. Whereas correct steps of using Turbuhalers were demonstrated by 66% of the pharmacists, more than half of the pharmacists were capable to demonstrate steps of Diskus at a moderate level. The study recommends a need for training programs tailored toward fostering community pharmacists' role as primary providers of asthma education.

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