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Scientific validation of Salix caprea Inflorescence and chemical composition, pharmacological potential of its aromatic water

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Salix caprea is well known medicinal plant because of their biological and pharmacological properties. The plant is widely used in treatment of various diseases. Chemical composition, antioxidant, anti-inflammatorypotential of hydrodisttilate including Pharmacopoeialpara- meters and estimation of Heavy metals, Microbial load, Aflatoxins from Salix caprea inflorescence are presented. Quantification of toxic metals was analyzed by inductively coupled plasma spectroscopy as well as Atomic Absorption Spectroscopy and Aflatoxins (B1, B2, G1, G2) were analyzed by HPLC. Fresh flowers were subjected to conventional hydrodistillation. Qualitative and Quantitative analysis of hexane extract of aromatic water was performed by GC and GC-MS. A total of 19 constituents representing (99.2%) of the aromatic water were identified; Hexahydrofarnesylacetone (38.3%), 2-butyl-octanol (24.0%), 2.hexyl-1-octanol (8.6%) were the main components.Results suggest that the hydro distillate possess significant antioxidant and anti-inflammtory properties. Moreover, result of quality control parameters shows that the Inflorescences are free from toxic substances.

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Synthesis of Nile red encapsulated Cubosomes for potential delivery vehicles

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Delivering active pharmaceutical ingredient (API) to the site of action without degradation or loss of active ingredient is challenging. This research focuson addressing pharmacokinetic challengesof hydrophilic and hydrophobic by synthesizing (Cubosomes) nanoparticles that can, accommodate,encapsulateand release both hydrophilic and hydrophobic drugs. The Cubosomes was synthesized by using glycerol monooleate (GMO) with Pluronic F-127 (PF-127)in chloroform. The mixture was dispersed in distilled water.Particles of GMO Cubosomeswas stabilized using Pluronic F-127 resulting into an average sizes of 135nm. The sizes, polarization index, internal morphology structures and encapsulation efficiency were confirmed using techniques such as Dynamic Light Scattering (DLS), Polarized Light Microscopy, Cold Cathode Field Emission Gun Scanning Microscope (FEG-SEM) and Ultra Violet Spectroscopy respectively. The solubilization of the model API (Nile red) was used to determined encapsulation efficiency of the nanoparticles. UV spectroscopy result shows thatCubosomessynthesedmay accommodate hydrophobic and hydrophilic drugs without losing the nanoparticles size, internal structureprovided the ratio of PF-127 to GMO is kept equal to and not below 13:87 ratios. It is therefore shown that Cubasomessynthesized are biocompatible, biodegradable, safe and efficacious carriers of active pharmaceutical ingredients.The data obtained indicates an increase in homogenization process of the nanoparticles which holds the probability ofa leading decrease in particle size while medium homogenization favors smaller particles. However, high poly-dispersity index and particles size of the Cubosomesdepend mostly on bimodality distribution of the particle size function. This requires the two-phase existence of the gap, and nonlinearity of the fraction total volume and the packing fraction of the mixture occupied by the nematicity phase.

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