

Antioxidant and antimicrobial property of mango (*Mangifera indica* L.) ripe peel

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The use of and search for drugs and dietary supplements derived from plants have accelerated in recent years. Ethnopharmacologists, botanists, microbiologists, and natural-products chemists are combing the Earth for phytochemicals and "leads" which could be developed for treatment of diseases. This study was designed to evaluate both the antioxidant/free-radical scavenging activities and antimicrobial activity of mango (*Mangifera indica* L.) ripe peel. The extraction was done by individual cold percolation method using various solvents (like petroleum ether, acetone, methanol and water) of increasing polarity. The antioxidant activity was evaluated using six antioxidant assays like 2, 2-diphenyl-1-picryl hydrazyl free radical scavenging assay, hydroxyl radical scavenging assay, superoxide anion radical scavenging assay, ABTS cation radical scavenging assay, ferric-reducing antioxidant power and reducing capacity assessment. Total phenol and flavonoid content was also measured. Antimicrobial activity was done by agar well diffusion method against 25 microorganisms. The MIC and MBC was also measured against selected bacteria. Acetone extract showed best antimicrobial and antioxidant activity and can serve as a potential source of antioxidants and antimicrobics for use in the preparation of dietary supplements or nutraceuticals, food ingredients, pharmaceutical, and cosmetic products. The results indicate that this peel possesses nutraceutical potential for the treatment of malnutrition.

Biography

Kalpna D. Rakholiya has done M.Sc. and M.Phil in 2008 and 2009 respectively in Microbiology from Saurashtra University, Rajkot, India. She has also submitted her Ph.D. thesis at March 2013 in Microbiology in the age of 26 years under the guidance of Dr. Sumitra Chanda, Professor, Department of Biosciences, Saurashtra University, Rajkot, India. Currently, she is working as a SRF at Dry Land Farming Research Center, Targhadia, Junagadh Agricultural University, Rajkot, India. She has published 8 research papers in different international journals of repute and has contributed 2 books and 5 book chapters. Besides, she has good number of poster and oral presentations in national and international conferences to her credit and got prizes for best presentations.

Curcumin hydrogel nanoparticles for diabetic wound healing

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Wound healing is an organized, complex set of biological and molecular events which mainly include coagulation, inflammation, proliferation and remodelling and any change in those events will lead to impaired wound healing. Diabetic wound is a pathological condition of impaired wound healing in which the wound is stuck in different phases, having lost the ideal synchrony of events that lead to rapid healing. In this study, an attempt was made to study the effect of curcumin, a potent antioxidant and anti inflammatory agent, by formulating it into hydrogel nanoparticles. Preformulation studies carried out using IR and DSC confirms the absence of major interactions between the drug and other excipients. The mean particle size of the formulations measured using photon correlation spectroscopy indicates that the average particle size of the formulations was below 250 nm. Further, the particle surface topography was examined using transmission electron microscope and atomic force microscope. The zeta potential of the formulations was found out using Malvern ZS 90. The entrapment efficiencies of the formulations revealed that a maximum of 85% of the drug was entrapped in the nanoparticles and the *in vitro* release shows that a maximum of 73.5% of the drug was released in 6 hours. The *in vivo* efficacy of the prepared topical nanogels and conventional gels was compared using excisional wound model in diabetes induced male Sprague-Dawley rats. Masson's trichrome analysis revealed a progressive increase in the amount of fibroblasts in the tissues of the wound when applied with curcumin hydrogel nanoparticles. Further, various parameters like granulation tissue thickness and the percentage wound closure analysis reveals that curcumin nanogels when applied topically have a potential role in promoting wound healing in diabetic patients.

Biography

Siram Karthik has completed B. Pharmacy and M. Pharmacy in Pharmaceutics from The Tamil Nadu Dr. M. G. R Medical University in the year 2013. His area of interests includes targeting of drugs to the lymphatics, brain and pilosebaceous unit, enhancement of bioavailability and diabetic wound healing. Currently, he has one paper publication to his credit and two are under review in peer reviewed journals. He has also presented several papers at various conferences.