

Novel drug delivery in herbal medicines

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Herbal medicines have widely been used all over the world since time immemorial. In recent years, there was unprecedented development in herbal medicines as they gain popularity in the developed world. Recently there was a greater global interest in non-synthetic, natural drugs derived from plant/herbal sources due to better tolerance and minimum adverse drug reactions.

Plants have been used in a wide variety of dosage form. Traditional dosage form includes pill, powder, semi fluid extract, tincture, decoction, medicated tea, solutions and many other traditional/alternative systems of medicine dosage forms.

In past, novel drug delivery approaches were not applied to herbal medicines owing to lack of scientific validation and processing difficulties, such as adulteration, standardization, extraction, purification and identification of marker compounds in complex poly-herbal dosage form.

In present scenario, due to advancement in interdisciplinary sciences and novel strategy in isolation, purification and identification techniques the variety of novel herbal formulations like polymeric herbal nano-carriers, phytosomes, Herbosomes, pro-niosomes, nanoemulsions, microsphere, transferosomes, implants and ethosomes has been reported using bioactive plant extracts/phytoconstituents. These novel formulations were found to have remarkable advantages over conventional formulations of plant origin such as enhancement of solubility, bioavailability, reduced toxicity, improved pharmacological activity, better stability, sustained delivery, and protection from physical and chemical degradation.

Recently, many formulations based on novel drug delivery system are produced by patented/non-patented technology from various herbal drugs/phytoconstituents such as curcumin, quercetin, silybin, bilobalide, marsupin, andrographolide, coumestans, metrine, embelin, brucine, rutin, apigenin, luteolin and many more. Hence novel drug delivery in herbal medicines has become a tool to improve herbal medicine pharmacokinetic and pharmacodynamic profile in order to improve its safety and efficacy.

Biography

Mukesh Singh Sikarwar has completed his Ph.D. at the age of 32 years from KLE University, Belgaum, Karnataka, Accredited 'A' Grade by NAAC placed in category 'A' by MHRD (GoI). He is working as Assistant Professor in Department of Pharmacognosy, KLEU College of Pharmacy, Belgaum a constituent college of KLE University. He has published 43 research and review papers in various peer reviewed international and national journals and serving as reviewer for many international journals. He has 7 years teaching and research experience. He has presented 22 research papers in various national and international conferences. He is a life member of APTI, annual member of ISPE and registered as pharmacist with M. P. State Pharmacy Council.

Traditional & alternative medicine and nanotechnology

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Healthcare burden on individuals is rising due to stressful life styles associated with urbanization and growing consumption of convenience foods. Moreover enhanced awareness and life spans are contributing to the growing demand for better and affordable health care. Over the past two decades the nanotechnologists are advancing tissue engineering & tissue regeneration, controlled and targeted drug delivery, stem cell therapy, diagnostics, and molecular level imaging. Nanotechnologists are now turning their attention to the medicinal values offered by small and large biomolecules derived from natural sources such as plants, soil, and organisms. This lecture will illustrate examples of combination of natural plants derived medicinal molecules and nanotechnology for improved healthcare.

Biography

Seeram Ramakrishna, FEng, FNAE, FIES is the Director of Centre for Nanofibers & Nanotechnology at the National University of Singapore. He received his Ph.D. degree from the University of Cambridge, UK and the General Management Training from Harvard University, USA. He is the recipient of Changjiang Professorship of China, GS Frontier Sciences Fellow, University of Tokyo, ASEAN Outstanding Engineering Award, NUS Outstanding Researcher Award, Lee Kuan Yew Fellowship, and Cambridge Nehru Scholarship. He is a highly Cited Researcher in Materials Science (worldwide rank is 3). He is considered as the global guru of electrospun nanomaterials. He authored 5 books and ~500 web of Science listed papers, which attracted ~25,000 citations and 76 H-index. He delivered more than 100 opening plenary and keynote lectures around the world. More than 20 patents are issued on his name and he mentors three start-up companies. He is an elected international fellow of major professional societies and academies in Singapore, ASEAN, India, UK and USA.

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