Abstract

Liposomes loaded with Curcumin were prepared for betterment of mouth ulcers therapy. This study explores feasibility of application of Cow Ghee (Clarified butter oil) as a lipid for preparation of Liposomes. This may fetch additional advantage of wound healing activity of Cow ghee. Liposomes were prepared by rotary flash evaporator. Curcumin was extracted from dried rhizomes of Curcuma longa by Soxhlet extraction. Batches were designed using 32 factorial design. All batches were prepared in dark place to protect from hydrolysis due to light. The liposomes were multilamellar encapsulating the vesicles inside and spherical in shape. Particle size of liposomes was ranging from 414.4 nm to 3165.5 nm showing heterogeneous distribution. The liposomes show maximum entrapment of 52.18%. Entrapment efficiency was found to be dependent on the ratio between phospholipids and curcumin. Optimised batch follows Koresmeyer- Peppas model. Liposomes prepared with Cow's ghee showed better stability at 2-8°C. It was observed that deviation in the temperature may cause degradation of the liposome batches. Storage under room temperature was found to cause aggregation of the liposome pellets destroying its re-suspendability. Liposome of Cow's Ghee and desired properties could be prepared demonstrating feasibility and scope for use of Cow ghee in modern formulations.

Biography

Dr. Avinash Hosmani is an academician having about 20 years of teaching & research experience. Currently he works as Associate Professor, Department of Pharmaceutics, Govt. College of Pharmacy, Ratnagiri, Maharashtra; India. He is a recognized PhD guide. He has his expertise in development of novel drug delivery systems like mucoadhesive systems, gel systems and liposomes. He is recipient of prestigious C.P. Nagai Award-2004, for the Best Paper at 20th International FAPA Conference held at Bangkok in December 2004. He has received several research grants from various funding agencies

References (With Hyperlink)

1. Ekambaram. P, Abdul Hasan Shathali. A, Pyriyanka. K. Solid Lipid Nanoparticles: A Review. Scientific reviews and chemical communications. 2012; 2 (1): 80-102.

2. S. Mukherjee, S. Ray, R. S. Thakur. Solid Lipid Nanoparticles: A Modern Formulation Approach in a drug delivery system. Indian journal of pharmaceutical science. 2009; 71 (4): 349-358.

3. I. Sarathchandiran. A Review on Nanotechnology in Solid Lipid Nanoparticles. International Journal of Pharmaceutical Development & Technology. 2012; 2 (1): 45-61.

4. Mark E. Davis, Zhuo (Georgia) Chen, Dong M. Shin. Nanoparticle therapeutics: an emerging treatment modality for cancer, Nature Reviews Drug Discovery. 2008; 7: 771-782.

5. Rainer H. Müller, Jana Pardeike, Aiman Hommoss. Lipid nanoparticles (SLN, NLC) in cosmetic and pharmaceutical dermal products. International Journal of Pharmaceutics. 2009; 366: 170–184.

6. Hsu SH, Wen CJ, Al-Suwayeh SA, Chang HW, Yen TC, Fang JY. Physicochemical characterization and in vivo bioluminescence imaging of nanostructured lipid carriers for targeting the brain: apomorphine as a model drug. Nanotechnology. 2010; 21 (40): 405101.

7. Mehnert M, Mader K. Solid lipid nanoparticles: production, characterization and applications. Advanced Drug delivery Reviews. 2001; 47 (2-3): 165-96.

8. Morel S, Terreno E, Ugazio E, Aime S, Gasco MR. NMR relaxometric investigations of lipid nanoparticles (SLN) containing gadolinium (III) complexes. European Journal of Pharmaceutics and Biopharmaceutics. 1998; 45 (2): 157-63.

9. Melike Uner, Gulgun Yener, Importance of solid lipid nanoparticles (SLN) in various administration routes and future perspectives. International Journal of Nanomedicine. 2007; 2 (3): 289–300.

Organization / University Logo