

Phytosomes: A Mini Review

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ABSTRACT

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Mini Review

Phytosomes is a novel drug delivery system approach and is effective in distributing the herbal drug at a predetermined rate, distributing the drug at the site of action, reducing toxic effects, increasing drug bioavailability, regulating the distribution of the drug is accomplished by incorporating the drug into the carrier system or altering the drug structure at the molecular level. Phytosomes are newly introduced by Indian patent technologies for the production and incorporation of standardized plant extracts [1]. The phytosomes method produces a small cell because digestive secretions and gut bacteria protect the valuable components of the herbal extract from destruction. Phytosomes are better able to transition from a hydrophilic state into the enterocyte cell membrane's lipid-friendly environment and from there into the cell that eventually enters the blood. Phytosomes have pharmacokinetic and pharmacological parameters that have been improved. Because of their improved ability to cross the lipid-rich bio membranes and ultimately enter the blood, phytosomes are more bioavailable than herbal extracts. Phospholipids are phosphatidylcholines. It is a central element of the cycle of phytosomes. As natural digestive aids and carriers for water soluble and lipid soluble nutrients, phospholipids are employed [2].

Method of Preparation

a. Anti-solvent precipitation method: Specific quantities of the medication and soy lecithin were taken in a 100 ml round bottom flask and refluxed for 2 h at a temperature not exceeding 60oC with 20 ml of dichloromethane. The concentration of this mixture is 5-10 ml. Hexane (20 ml) was carefully added with continuous stirring to get the precipitate filtered and collected and stored overnight in vacuum desiccators. In mortar, the dried precipitate is crushed and sifted through # 100 meshes [3].

b. Rotary evaporation method: Specific amounts of the medication and soy lecithin were dissolved in a rotary round bottom flask of 30 ml of tetrahydrofuran followed by stirring at a temperature not exceeding 40oC for 3 hours. A thin film was obtained from the sample to which n-hexane was applied and continuously mixed by means of a magnetic stirrer. The acquired precipitate was gathered, placed and stored at room temperature in an amber colored glass container [4].

c. Solvent evaporation method: Specific quantities of the drug and soy lecithin were taken in a 100 ml round bottom flask and refluxed for 2 h at a temperature of 50-60oC with 20 ml of acetone. To get the precipitate that has been filtered and collected, the mixture is condensed to 5-10 ml. The dried precipitate phytosome complexes were placed in an amber coloured glass bottle and kept at room temperature [5].

Additives used in preparation of Phytosomes

- Phospholipids: Egg phosphatidyl choline, Disearyl phosphatidyl choline, Soya phosphatidyl choline etc.
- Solvents: Acetone, Dioxane, ethanol, methanol, n-hexane etc [6].

Methods used for Characterization of Phytosomes

- Melting point determination
- Drug release
- Entrapment efficiency
- Percentage drug entrapment
- Thin Layer Chromatography
- Infrared- Spectroscopy

- g. Nuclear magnetic resonance spectroscopy
- h. Differential scanning calorimetry
- i. X-Ray Diffraction analysis
- j. Scanning electron microscopy
- k. Transmission electron microscopy
- l. Photon correlation spectroscopy [7].

Summary

This mini review is an attempt to cover the general aspects of Phytosomes technology used for delivery of herbal extracts using a novel approach like its methods of preparation, additives used in preparation of pytosomes and its Characterization methods briefly.

References

1. Awasthi Rajendra, Kulkarni Giriraj, Pawar Vivek (2011) PHYTOSOMES: An approach to increase the bioavailability of plant extracts; International Journal of Pharmacy and Pharmaceutical Sciences 3(2): 1-3.
2. Karimi Nayyer, Ghanbarzadeh Babak, Hamed Hamishehkar Hamed, Keivani Fatemeh, Akram Pezeshki, et al. (2015) The Beneficial Encapsulation Systems in Drug Delivery and Food Application. Applied Food Biotechnology 2(3): 17-27.
3. Jan Husch, Janine Bohnet, Gert Fricker, Carsten Skarke, Christian Artaria, et al. (2013) Enhanced absorption of boswellic acids by a lecithin delivery form (Phytosome®) of Boswellia extract. Fitoterapia 84: 89-98.
4. Fei Yu, Yang Li, Qin Chen, Yuan He, Huiyun Wang, et al. (2016) Monodisperse microparticles loaded with the self-assembled berberine-phospholipids complex-based phytosomes for improving oral bioavailability and enhancing hypoglycemic efficiency. European Journal of Pharmaceutics and Biopharmaceutics 3: 1-48.
5. Mazumder Anisha, Dwivedi Anupma, Jan L du Preez, Plessis Jeanetta du (2016) In vitro wound healing and cytotoxic effects of sinigrin-phytosome complex. International Journal of Pharmaceutics 498: 283-293.
6. Naik SR, Panda VS (2008) Hepatoprotective effect of Ginkgoselect Phytosome® in rifampicin induced liver injury in rats: Evidence of antioxidant activity. Fitoterapia 79: 439-445.
7. Gupta N K, Dixit VK (2011) Development and evaluation of vesicular system for curcumin delivery. Achieves of Dermatological Research 303: 89-101.

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