WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.453
Volume 13, Issue 9, 2116-2120. Review Article ISSN 2277–7105

FORMULATION AND EVALUATION OF PHYTOSOMES

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Article Received on
22 March 2024,

Revised on 12 April 2024,
Accepted on 02 May 2024

DOI: 10.20959/wjpr20249-32164

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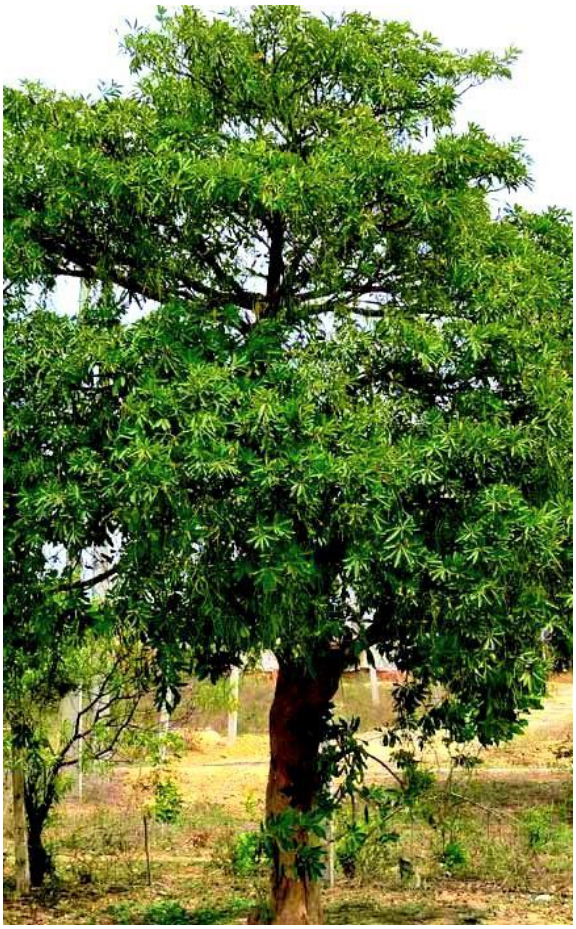
Since ancient times the therapeutic uses of traditional medicines and phytome dicines have proved very popular for health maintenance by various means. During the last century chemical and pharmacological studies have been performed on many plant extracts in order to investigate their chemical composition and confirm their therapeutic usefulness.[1] Over the past several years, great advances 1 Phytosome technology emerged in 1989.[2] Water-soluble phytoconstituents (mainly polyphenols) can be converted into a lipid-compatible molecular complex known as phytosome. A phytosome is generally more bioavailable. than a simple herbal extract due to its enhanced capacity to cross the lipid-rich biomembranes and to reach systemic CIRCULATION 3 Phytosome is obtained by reacting of soy phospholipids with the selected botanical derivatives in an opportune solvent. On the basis of their physical-chemical and spectroscopic characteristics, these complexes can be considered novel entities.[4] Phytosomes (P) increases absorption of polar phytoconstituents orally which are lipid insoluble in nature and topically shows an increase in bioavailability whichresults in greater therapeutic benefit. When the rate of absorption rate of an active constituent is increased, the dose required will be reduced.[5]

Alistonia Scholaris

is a glabrous tree and grows up to 40 m (130 ft) tall. Its mature bark is grayish and its young branches are copiously marked with lenticels. A unique feature of this tree is that in some places, such as New Guinea, the trunk is three-sided (i.e. it is triangular in cross-section).[6]

Alistonia scholaris also known as Devil, s tree. it is a natural Indian plant used as a traditional medicine for many years to cure disease.

Despite its widespread traditional use as an 'antiperiodic' (a medicine which was supposed to cure the effects of malaria), it was found to have little to very weak activity against *Plasmodium falciparum*.[13][14] It had no effect against *Giardia intestinalis*.[7] and weak effect against *Entamoeba histolytica*, which both cause diarrhoea.[8]



Phytosomes

Phytosome is also called as Phytolipids delivery system which forms a bridge between the convectional delivery system and novel delivery system. It is a newly introduced patented technology developed by Indena to incorporate standardized plant extracts or water soluble phytoconstituents into phospholipids to produce lipid compatible molecular complexes, which enhances their absorption and bioavailability 8. The term "phyto" means plant, while "some" means cell-like. Over the past century; phytochemical and phyto-pharmacological sciences established the compositions, biological activities and health promoting benefits of numerous botanical product.[9]

Most of the biologically active constituents of plants are polar or watersoluble molecules. However, water soluble phytoconstituents [like flavonoids, tannins, glycosidic aglycones etc] are poorly absorbed either dueto their large molecular size which cannot absorb by passive diffusion, or due to their poor lipid solubility; severely limiting their ability to pass across the lipid-rich biological membranes, resulting.

Properities of Phytosomes

1. Phytosomes are lipophilic substances with a definite melting point, freely soluble in non-polar solvents, and moderately soluble in fats.
2. When treated with water, they assume a micelle shape, forming structures that resemble liposomes exhibiting fundamental differences.

Advantages of Phytosomes

Phytosomes enhance the bioavailability and stability profiles by forming a stable complex with phospholipids, and the drug delivery improves absorption from the site of action in the intestinal tract than when administered as an herbal constituent alone.[10,11,12,13]

1. Facilitates liver targeting by increasing the solubility in the bile salts. 2. The required dose is reduced as the absorption Of the active constituents is improved.
2. Entrapment efficiency is high and more over predetermined because drug itself is in conjugation with lipids in forming vesicles.
3. There is no problem in drug entrapment while formulating phytosomes.
4. Phytosomes show better stability profile due to the formation of chemical bonds between phosphatidylcholine molecules and the phytoconstituents.

Diabetes mellitus

Formulation of phytosomes

The specific amount of plant extract and soya lecithin was dissolved in THF in a rotary RBF followed by stirring for 4 h at a temperature not exceeding 400C. Thin film of the sample was obtained to which n-hexane was added and continuously stirred using a magnetic stirrer. The precipitate obtained was collected, placed in amber coloured glass bottle and stored in refrigerator.

EVALUATION PARAMETER

1. Patela J, Patelb R, Khambholjab K, Patela N. An overview of phytosomes as an advanced herbal drug delivery system. Asian J Pharm Sci, 2009; 4(6): 363-371.
2. E. Bombardelli, S.B. Curri, LR Della, et al. Complexes between phospholipids and vegetal derivatives of biological interest. Fitoterapia, 1989; 60: 0 1-9.
3. P.M. Kidd, K. Head. A review of the bioavailability and clinical efficacy of milk thistle phytosome: A silybin–phosphatidylcholine complex (Siliphos®). Altern. Med. Rev, 2005; 10: 193–203.
4. P.M. Kidd. Bioavailabily 3 Manach C, Scalbert A, Morand C. Polyphenols: Food Sources and Bioavailability. Am J Clin Nutr, 2004; 79: 727-47.
5. Sharma S and Roy RK. Phytosomes: An Emerging Technology. International Journal of Pharmaceutical Research and Development, 2010; 2(1): 1-5.
6. *Lane-Poole, C.E. Forest Resources of the Territories of Papua and New Guinea. Melbourne: Government Printer, 1925; 134.*
7. *J. H. Maiden (). The useful native plants of Australia: Including Tasmania. Sydney: Turner and Henderson, 1889; 7.*
8. Jump up to:[a b] *Wright, Colin W.; Allen, David; Phillipson, J. David; Kirby, Geoffrey C.; Warhurst, David C.; Massiot, Georges; Le Men-Olivier, Louisette (September). "Alstonia species: are they effective in malaria treatment?" Journal of Ethnopharmacology, 1993; (1): 41–45. doi:10.1016/0378-8741(93)90087-L. PMID 8246529.*
9. Jain N. Phytosome: A Novel Drug Delivery System for Herbal Medicine. International Journal of Pharmaceutical Sciences and Drug Research, 2010; 2: 224-228.
10. M. Sravanthi, J. Shiva Krishna, Phytosomes- a novel drug delivery for herbal extracts – International Jpharmsci Res, – 2012; 4(3): 949-959.

11. Patel J, Patel R, Khambholja K, Patel N. An overview of phytosomes as an advanced herbal drug delivery system. Asian J Pharm Sci, 2009; 4: 363-71.
12. Singh A, Saharan V. A., et al, Phytosomes: Drug delivery system for polyphenolic phytoconstituents. IJPS Autumn, 2011; 7(4): 209-219.
13. Bombardelli E, Morazzoni P. Phospholipid complexes of proanthocyanidin as antiatherosclerotic agents. Indena Spa, Milan, 2002; 359-361.
14. Jain NK, Controlled and Novel Drug Delivery, CBS Publisher, II ed, 13. Chauhan, NS, Gowtham R. Gopalkrishna, B, 2005; 321-326.