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Short Communication

Characterization and Pharmacological Evaluation of Phytophospholipid

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DESCRIPTION

According to the World Health Organization (WHO), about 70-80% of the world's population in developing countries depends on plants based medicine or herbal medicines for their primary healthcare. 10 Indian medicinal plants are recommended as a valuable source of several pharmacologically active principles which are used for the treatment of various diseases. Herbal medicines are the oldest and most acceptable form of medication in the history of civilization to cure human aliments in almost every possible condition and over the synthetic molecules because the herbal drugs have lesser side effects [1].

One-third to approximately one-half of presently available drugs are generally derived or obtained from plants or other natural sources [2]. Now a days the globally efforts are put towards finding out herbal or phyto-pharmaceuticals on lab scale and further successive preclinical and clinical trial were carried out to bring them in market by developing a suitable drug delivery system.

It has been observed that the active constituents isolated from plants have shown to exhibit a robust *in vitro* pharmacological effects, but poor *in vivo* performance because of limited absorption by oral route that limits their widespread application.

However the basic reasons for the poor bioavailability of herbal drugs or photoactive are mainly due to the two inherent properties, firstly, the multi-ring structures of natural compounds are very complex and too large for the absorption of drug by passive diffusion. Second, the poor aqueous or lipid solubility of these plant derived isolated compound prevents its permeation through the outer biological membrane of gastrointestinal cells. Moreover the standardized extracts when given by oral route, lose some of their constituents in the presence of gastric fluids [3,4].

Herbal therapy is more effective than novel drug delivery system for herbal drugs (NHDDS) have been developed and some of the novel approaches for enhancement of bioavailability are as development of delivery system like nanoparticles, binding or complexation with lipids such as liposomes, niosomes or herbosomes/phytosomes, microparticulate delivery in the form of micro emulsions or microsphere, modification in chemical structures of parent compounds, prodrug approach and complexation with cyclodextrins. These Novel Herbal Drug Delivery System (NHDDS) have number of benefits like enhancement of solubility, improvement of bioavailability, protection of drug from enzymatic degradation, enhancement of therapeutic effect, stability improvement of herbal dosages form, improving tissue macrophages distribution, sustained drug delivery profile, potential drug targeting, protection of drug from degradation through physical and chemical environment.

CONCLUSION

It has been also observed from the different research report that the incorporation of hydrophilic plant base drugs to phospholipid molecules specially containing phosphotidylcholine in their structure to form phospholipid complex, markedly improved their bioavailability by increasing permeation through the lipoidal biological membrane while the phospholipid complexation of lipophillic plant actives or herbal extract improved their bioavailability by increasing their solubility in gastrointestinal fluids. The isolated plant active molecule or standardized herbal extract or especially polyphenolic compounds form a stable complex with phospholipid carrier molecule by the chemical bonds formation between phtyo-pharmaceuticals and phospholipid. This complex formation can be further proved or established by thermal analysis of phytophospholipid complexes with respect to pure phytoactive drug and their physical mixture.

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