

9<sup>th</sup> World Congress on

## BIOAVAILABILITY AND BIOEQUIVALENCE

April 16-18, 2018 Dubai, UAE

## Bioavailability enhancement of flavonoids through vesicular complex with soya phosphatidylcholine

Asmita Gajbhiye Patil<sup>1</sup> and Pushpendra Kumar Jain<sup>2</sup><sup>1</sup>Dr. Harisingh Gour Central University, India<sup>2</sup>IIIT College of Pharmacy, India

Quercetin, mangiferin, kaempferol are a well-known flavonoid compound found in plants, foods and beverages. These flavonoids have shown several pharmacological activities including antioxidant, anti-inflammatory, anticancer and antiviral properties. Despite a variety of biological effects, they are very poorly soluble in water, which has limited their absorption upon oral administration and rapid clearance from intestine. Therefore, it is required to develop a drug delivery system to resolve this problem. Some phytoconstituents that are not effectively bioavailable, by binding them to phosphatidylcholine, they can be made in highly bioavailable form. One of the most important groups of phytoconstituents is the flavonoid which can be bind with soya phosphatidylcholine (SPC). The resulting phytosomes formed are protected from destruction by digestive secretions and gut bacteria. The phytosomes intensifies herbal compounds by improving absorption, increasing bioavailability and enhancing therapeutic potential. The phytosomes contains active ingredients of herb surrounded and chemically bound with phosphatidylcholine which is one of the chief components of the membranes in the human cells. Phytosomes of quercetin, mangiferin and kaempferol were successfully prepared through complexation with soya phosphatidylcholine (SPC) which were characterized by spectroscopic (IR and NMR), microscopic (TEM) and colorimetric (DSC) analysis. The pharmacokinetic study was performed for the assessment of bioavailability. The IR, NMR and DSC spectra of phytosomes were showed by different peaks as compared to that of phytosomes. Pharmacokinetic study revealed significant increased absorption of phytosomes. The prepared complexes were characterized by solubility studies, DSC, TLC, FTIR and <sup>1</sup>H-NMR spectroscopic analysis. These physicochemical and spectroscopic investigations clearly showed evidence for the formation of quercetin-soya phosphatidylcholine complex. The result of pharmacokinetic study clearly indicates that vesicular complex is more easily absorb than individual ingredients and hence it can be concluded that drug-SPC complex is more bioavailable than individual ingredients.

## Biography

Asmita Gajbhiye Patil is currently working as Professor and Head at Department of Pharmaceutical Sciences in Dr. Harisingh Gour Vishwavidyalaya, Madhya Pradesh, India. She has completed her Masters (1996) from the Department of Pharmaceutical Sciences, Dr. Harisingh Gour Vishwavidyalaya, Sagar and her Doctoral degree in Pharmaceutical Sciences (2006) from Kakatiya University, Warangal, India. She has 20 years of teaching experience. She has authored 40 publications in various journals of national and international repute. Her publications reflect her research interests in both the fields of medicinal chemistry as well as pharmacology. She had filed a patent also and completed several major projects sponsored by various agencies such as DST, MPCST, ICMR, CSIR and UGC. She was a Member of Executive Council, Member of Research Council, Member of Mahila Kalyan Samiti of Dr. Harisingh Gour Vishwavidyalaya. Presently, she is holding the post of an Anti-Discrimination Officer at Dr. Harisingh Gour Vishwavidyalaya. She is honored with Mother Teresa Shiksha Rattan Award 2016 by International Business Council and National Mahila Rattan Gold Medal 2017 by International Institute of Education and Management, New Delhi.

asmitapatil27@rediffmail.com

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