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SERIES 94
&
CMBRI Seminar Series FY2024-4
Dr. Minni Singh
2024-07-10

Series - 94

Date and Time - 10th July 2024 (15:30 JST | 12:00 IST)

Venue - Zoom

Speaker - Dr. Minni Singh

Affiliation - Nanoformulations Laboratory, Punjabi University, Patiala, India

E-mail: minnisingh@pbi.ac.in



Nanoformulations: towards translational research and product development

Nature-derived bioactives have always charmed nutraceutical scientists as these components of traditional medicine are studied more than ever before. These goldmines hold the key to the management and possible cure of many a disease, as prophylactics and treatments. However, as we explore these compounds, we understand that in most cases their potential may not be fully realized owing to certain limiting factors, such as hydrophobicity, pre-systemic metabolism, or the lack of receptors, which, in turn, hampers their absorption thereby markedly limiting their nutraceutical capabilities. Hence, the role of nanotechnology in amalgamation with traditional knowledge cannot be ignored. The research that would be presented is a decade long work on nutraceuticals, particularly, flavonoids and curcuminoids, and the different types of nanoformulations, viz. polymeric nanoparticles, nanoemulsions, solid lipid nanoparticles, and nanostructured lipid carriers that have been developed and their role in enhancing their absorption in cell free gastrointestinal environments. The translation of turmeric nanoformulation into a product will be discussed. Limonoids derived from mandarin peels will find a special mention, as these were extracted from the peels of the fruit which was processed in an industry, PAGREXCO. Interestingly, deriving the bioactives from wastes and utilizing them as potential treatments of disease contributes significantly towards sustainable solutions of the near future. The limonoid nanoformulations were put through clinical trials on patients with non-alcoholic fatty liver disease and resulted in significant improvements in markers of liver function, in comparison to the controls, thereby highlighting the role of nanotechnology in overcoming some challenges. The intention, however, is not to compete with the standard of care treatments, but to complement the same, which would allow better management of diseases.

Hanyang university

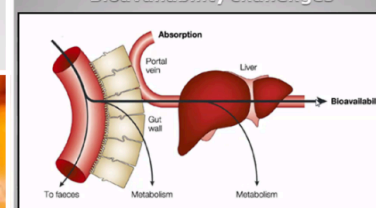


From Prototype to Product:

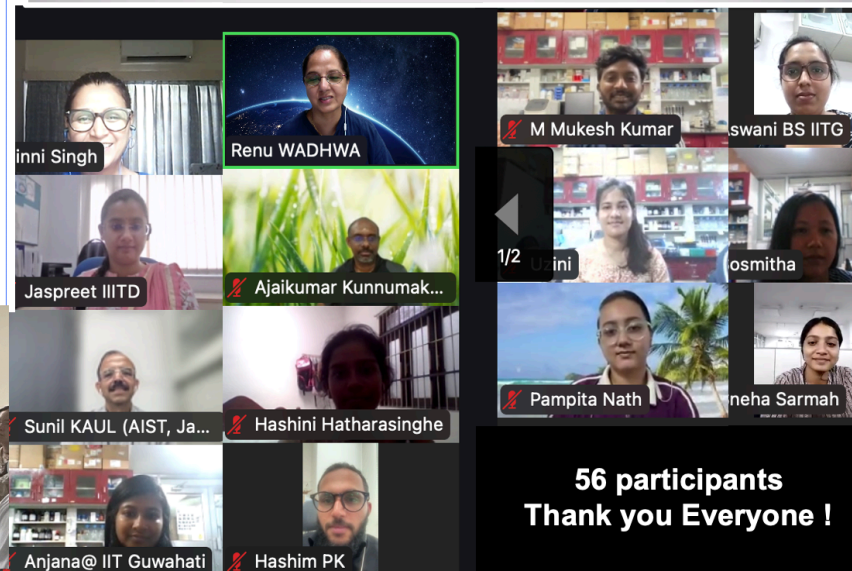
Nanoformulations as delivery vehicles of drugs/nutraceuticals

- Polymeric nanoparticles
- Solid lipid nanoparticles
- Nanoemulsions
- Nanodispersions

Gastric instability and the Bioavailability challenges



- **Nanoformulations in products is now a reality.**
- **Regulatory compliance is the key.**
- **Translational Research is the way forward.**



RW Renu WADHWA (H)

MS Minni Singh

AK Ajaikumar Kunnumakur

Anjana@ IIT Guwa

AB Aswani BS IITG

Hi Hashini's iPhone

JL Jaspreet IIITD

KAUSHITA BANER

MM M Mukesh Kumar

PN Pampita Nath

P Parama

PK Pynhunlang Kharn

Sonam Lama (Sikkim)

S Sosmitha

SD Souvik Das (S.U)

SK Sunil KAUL (AIST,

U Uzini

VR Vishwa R

PK Pynhunlang Kharn