

Novel Drug Delivery Systems:

Introduction:

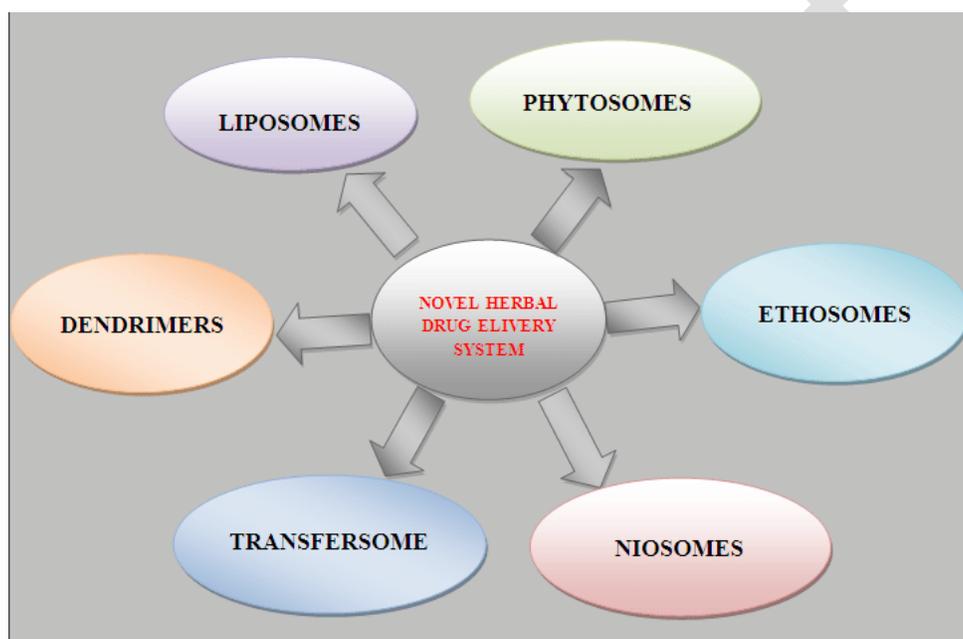
- The method by which a drug is delivered can have a significant effect on its efficacy.
- A novel drug delivery systems (NDDS) can be defined as a new approach that combines innovative development, formulations, new technologies, novel methodologies for delivering pharmaceutical compounds in the body as needed to safely achieve its desired pharmacological effects.
- The new ideas on controlling the pharmacokinetics, pharmacodynamics, non-specific toxicity biorecognition and efficiency of drugs were generated.
- These new strategies are called drug delivery systems (DDS)
- Drug Delivery Systems (DDS) are based on interdisciplinary approach that combines polymer science, pharmaceuticals, bioconjugate chemistry, and molecular biology.
- To minimize drug degradation and loss to prevent harmful side effects and to increase drug bioavailability and the fraction of the drug accumulated in the required zone various drug delivery and drug targeting systems are currently under development.
- Some drugs have an optimum concentration range within which maximum benefit is derived and concentrations above or below this range can be toxic or produce no therapeutic benefit at all.

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- On the hand the very slow progress in the efficacy of the treatment of severe disease has suggested a growing need for a multidisciplinary approach to the delivery of therapeutic to targets in tissues.

Classification Of Novel Drug Delivery System



Advantage:

- Improve patient compliance
- Accurate dosing
- Enhanced efficacy and safety
- Decreased toxicity/side effects
- Controlled delivery by maintaining desired drug concentration and controlled rate.
- Beneficial to patients with improved comfort and standard of living.
- Reduction in drug accumulation with chronic therapy.

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Disadvantages:

- Less patients compliance.
- Repeated dosage is necessary.
- Large amount of drug deliver.

Challenge of novel drug delivery systems (NDDS):

- Problems involved and overcoming challenges in the delivery of poorly soluble drugs
- Novel approaches in the delivery of poorly soluble drugs
- Overcoming bioavailability hurdles for poorly soluble clinical candidates
- Rationale formulation design for poorly soluble compounds
- Overcoming challenges in protein drug delivery
- Challenges in pediatric and geriatric drug delivery
- Overcoming addictive nature of drugs