SNEDDS present a promising solution for enhancing the bioavailability of poorly soluble drugs

Ashlyn Hansen and Hannah Baughman

Around 70% of newly developed drugs suffer from poor solubility, limiting their efficacy, dosage portability, and therapeutic outcomes. Lipid-based drug delivery systems have been extensively studied for their ability to enhance drug solubility, permeability, and bioavailability. Self-nanoemulsifying drug delivery systems (SNEDDS) are particularly effective for oral administration of hydrophobic drugs, especially class II (low solubility, high permeability) and class IV (low solubility, low permeability) according to the biopharmaceutical classification system. SNEDDS work by spontaneously forming a nanocarrier composed of oil, surfactant, and co-surfactant around the active drug ingredient. This review discusses the preparation, components, mechanisms, and clinical applications of SNEDDS for better-regulated administration of poorly soluble pharmaceuticals. Key conclusions highlight that SNEDDS formulations can enhance the release rate of specific drugs and yield more promising outcomes in achieving a drug's intended and desired effects compared to conventional approaches. Future directions involve exploring alternative routes of administration, focusing on intranasal delivery to bypass the blood-brain barrier.