**pH-Modified Self-Nanoemulsifying Drug Delivery System (SNEDDS) of Finerenone for Enhanced Solubility and Dissolution**

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**Background and aims.** Finerenone (FIN) is a nonsteroidal mineralocorticoid receptor antagonist indicated for patients with chronic kidney disease (CKD) and type 2 diabetes (T2D). Despite its clinical efficacy, FIN belongs to the Biopharmaceutics Classification System (BCS) Class II and exhibits poor aqueous solubility and pH-dependent dissolution. These characteristics limit its oral bioavailability and pose challenges for consistent therapeutic exposure. This study aimed to develop a pH-modified self-nanoemulsifying drug delivery system (SNEDDS) to enhance the solubility and dissolution of FIN.

**Methods.** Oils and surfactants were screened based on FIN solubility and stability. Citric acid (CA) was evaluated as a pH-modifying agent to enhance solubility in surfactants. SNEDDS formulations with and without CA were prepared and evaluated for particle size, drug loading, encapsulation efficiency, physical stability (8 weeks), and differential scanning calorimetry (DSC) properties. In vitro dissolution studies were performed in pH 1.2, pH 4.0, pH 6.8, and water to simulate gastrointestinal conditions.

**Results.** Citric acid significantly increased FIN solubility in surfactants (6.17-fold). The optimized SNEDDS formulation (TPGS/Capmul MCM C10/CA) achieved a drug loading of approximately 7 %, with a mean droplet size below 50 nm. Stability studies confirmed >95 % FIN retention after 8 weeks at room temperature. In vitro dissolution tests showed >90 % dissolution rate within 30 min across all pH media. DSC confirmed that the CA-containing SNEDDS remained in a liquid state, contributing to faster dissolution compared to the solid-state formulation without CA.

**Conclusion/Discussion.** The SNEDDS incorporating pH modification provides a promising oral administration route to enhance the solubility and dissolution of drugs that are poorly water-soluble and exhibit pH-dependent solubility, such as FIN.

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