

## Development and Evaluation of Simvastatin Based Self Nanoemulsifying Drug Delivery System (SNEDDS) for Treatment of Alzheimer's Disease

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**Abstract :** The aim of this research work to improve the solubility and bioavailability of Simvastatin using a self nanoemulsifying drug delivery system (SNEDDS). Self emulsifying property of various oils including essential oils was evaluated with suitable surfactants and co-surfactants. Validation of a method for accuracy, repeatability, Interday and intraday precision, ruggedness, and robustness were within acceptable limits. The liquid SNEDDS was prepared and optimized using a ternary phase diagram, thermodynamic, centrifugation and cloud point studies. The globule size of optimized formulations was less than 200 nm which could be an acceptable nanoemulsion size range. The mean droplet size, drug loading, PDI and zeta potential were found to be 141.0 nm, 92.22%, 0.23 and -10.13 mV and 153.5nm, 93.89 % ,0.41 and -11.7 mV and 164.26 nm, 95.26% , 0.41 and -10.66mV respectively.

**Keywords :** simvastatin, self nanoemulsifying drug delivery system, solubility, bioavailability

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