

















### CONCLUSION

A SNEDDS formulation of a poorly water-soluble drug, Simvastatin was formulated. The formula composition of SNEDDS for preparation of s-SNEDDS was identified based on solubility evaluation, pseudo ternary phase diagram, and droplet size analysis. The optimized formulation showed rapid self nano emulsification in an aqueous media with droplet size 15.20 nm and PDI 0.303. The SNEDDS formulation converted into s-SNEDDS using Crospovidone as carrier in 1:2 ratio by adsorption technique. Prepared s-SNEDDS showed "Good" flow properties. Prepared s-SNEDDS showed spontaneous emulsification i.e. in less than 1min with Droplet size 16.27nm and PDI 0.276. From In-Vitro drug release profile it was clear that the percentage drug release from s-SNEDDS is 5.8 times and 1.7 times higher than that of pure drug and marketed tablet. Accelerated stability testing at 40°C and 75%RH for s-SNEDDS of Simvastatin showed formulation was stable for 6 months accelerated stability study. Hence the present study concluded that the s-SNEDDS formulation clearly shown improved and increased dissolution of Simvastatin.

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### REFERENCES

1. Kanika Sarpal ; Yogesh B.Pawar ; Arvind K.Bansal. Self-emulsifying drug delivery systems: a strategy to improve Oral Bioavailability. Current research and Information on Pharmaceutical Sciences (CRIPS), 2010 ; Vol.11 No.3 : 42 – 49.
2. Amit Chaudhary ; Upendra Nagaich ; Neha Gulati ; V.K.Sharma ; R.L.Khosa. Enhancement of Solubilization and bioavailability of poorly soluble drugs by physical and chemical modifications: A recent review . Journal of Advanced Pharmacy Education and Research, 2012 , ISSN 2249 – 3379 , 2(1) : 32 – 67.
3. D.M.Brahmankar ; Sunil B. Jaiswal : Biopharmaceutics and Pharmacokinetics A Treatise : 345 – 357.
4. Ms.Hiral A.Makadia ; Ms.Ami Y.Bhatt; Mr.Ramesh B.Parmar ; Ms.JalpaS.Paun; Dr. H.M.Tank. Self – nanoemulsifying drug delivery system (SNEDDS) : Future Aspects. Asian journal of pharmacy . Res, 2013 ; vol.3 ; Issue 1 :21-27.
5. Durgacharan Arun Bhagwat ; John Intru D' Souza. Formulation and evaluation of solid self micro emulsifying drug delivery system using Aerosil 200 as solid carrier. International current pharmaceutical journal , 2012 ; 1(12) : 414 – 419.
6. Preethi Sudheer ; Nishanth Kumar M ; Satish Puttachari ; Uma Shankar MS ; Thakur RS. Approaches to development of solid- self micron emulsifying drug delivery system: formulation techniques and dosage forms – a review. Asian journal of pharmacy and life science , 2012 ; Vol.2(2): 214 – 225.
7. Durgacharan Arun Bhagwat ; John Intru D' Souza. Formulation and evaluation of solid self micro emulsifying drug delivery system using Aerosil 200 as solid carrier. International current pharmaceutical journal , 2012 ; 1(12) : 414 – 419.
8. \*C Srinivas; S Vanitha Sagar. Enhancing the bioavailability of Simvastatin using Microemulsion Drug Delivery System. Asian journal of Pharmaceutical and Clinical research, 2012; Volume 5, issue 4: 134-139.
9. Margulis – Goshen K; Magdassi S. formation of Simvastatin nanoparticles from microemulsion. Nanomedicine, 2009, 5: 274 – 281.
10. Nilesh Jain ; Ruchi Jain ; Hemant Swami ; Sharad Pandey ; Deepak Kumar Jain. Spectrophotometric method for simultaneous estimation of Simvastatin and Ezetimibe in bulk drug and its combined dosage form. International journal of pharmacy and pharmaceutical sciences , 2009, Vol 1: 170 – 175.
11. Varsha Balkrishna Mane ; Suresh Babar ; Nita Kulkarni. Development of UV Spectrophotometric method for the simultaneous estimation of Simvastatin and Ezetimibe in tablet dosage form by simultaneous equation and absorbance ration method. International journal of PharmTech Research ; Vol .3(3) , 2011: 1459 – 1466.
12. Urvashi Goyal ; Ankit Gupta ; Avtar Chand Rana ; Geeta Aggarwal. Self micro emulsifying drug delivery system : A method for enhancement of bioavailability. International journal of pharmaceutical sciences and research , 2012 ; Vol.3(1): 66 – 79.
13. M. Sunitha Reddy\* ; P.Srinivas Goud; S.S.Apte. Solubility enhancement of Candesartan cilexetil by self emulsifying drug delivery systems. IJPSR, 2012; Vol.3(7): 2098-2104.
14. A.Madhu Babu ; B.Prakash Rao ; P.Sudhakar ; K.R.S.Sambasiva Rao. Formulation and evaluation of self nanoemulsifying drug delivery system of low solubility drug Simvastatin for improved solubility and bioavailability. International journal of biological & pharmaceutical research , 2012 ; 3(6): 767 – 774.
15. Ms.Hiral A.Makadia ; Ms.Ami Y.Bhatt; Mr.Ramesh B.Parmar ; Ms.JalpaS.Paun; Dr. H.M.Tank. Self – nanoemulsifying drug delivery system (SNEDDS) : Future Aspects. Asian journal of pharmacy . Res, 2013 ; vol.3 ; Issue 1 :21-27.
16. Preeti K Suresh ; Sudhanshu Sharma. Formulation and In-vitro characterization of self-nanoemulsifying drug delivery system of Cinnarizine. Pharmacie Globale (IJCP) 2011 , 9(08) : 1 -6.
17. M. Sunitha Reddy\* ; P.Srinivas Goud; S.S.Apte. Solubility enhancement of Candesartan cilexetil by self emulsifying drug delivery systems. IJPSR, 2012; Vol.3(7): 2098-2104.
18. Preeti K Suresh ; Sudhanshu Sharma. Formulation and In-vitro characterization of self-nanoemulsifying drug delivery system of Cinnarizine. Pharmacie Globale (IJCP) 2011 , 9(08) : 1 -6.
19. Kshitija Khedekar ; Swati Mittal. Self emulsifying drug delivery systems : A Review. International journal of pharmaceutical sciences and research , IJPSR , 2013 ; Vol.4(12): 4494-4507.
20. Durgacharan Arun Bhagwat ; John Intru D' Souza. Formulation and evaluation of solid self micro emulsifying drug delivery system using Aerosil 200 as solid carrier. International current pharmaceutical journal , 2012 ; 1(12) : 414 – 419.
21. Mrs. Maria Saifee ; Sharda Zarekar ; Dr. Vinay.U Rao ; Dr.Zahid Zaheer ; Mrs. Reshma Soni ; Shailesh Burande. Formulation and In vitro evaluation of solid-self-emulsifying drug delivery system (SEDSS) of Glibenclamide. American journal of advanced drug delivery , 2013 ; (1)(3) : 323 – 340.
22. More H.N ; Hazare A.A (2004) : Practical Pharmaceutics (Physical Pharmacy) Manas Prakashan, Kolhapur, first edition : 86 -105.
23. Martin's Physical Pharmacy and Pharmaceutical sciences – Sixth edition – Patrick J. Sinko : 48 – 52 ; 461 – 466.
24. Mrs. Maria Saifee ; Sharda Zarekar ; Dr. Vinay.U Rao ; Dr.Zahid Zaheer ; Mrs. Reshma Soni ; Shailesh Burande. Formulation and In vitro evaluation of solid-self-emulsifying drug delivery system (SEDSS) of Glibenclamide. American journal of advanced drug delivery , 2013 ; (1)(3) : 323 – 340.
25. Durgacharan Arun Bhagwat ; John Intru D' Souza. Formulation and evaluation of solid self micro emulsifying drug delivery system using Aerosil 200 as solid carrier. International current pharmaceutical journal , 2012 ; 1(12) : 414 – 419.