# SOLUBILITY ENHANCEMENT OF CURCUMIN BY SOLID NANOEMULSIFYING DRUG DELIVERY SYSTEM

**[1]RASHMI V. TRIVEDI, [2]NEHA S. RAUT, [3]MILIND J. UMEKAR**

Smt. Kishoritai Bhoyar College of Pharmacy, Kamptee, Nagpur, India
E-mail: [1]rashmitrivedimishra@gmail.com, [2]rautneha123@gmail.com, [3]milind_umekar@rediffmail.com

**Abstract** - The present investigation was carried out with the aim to enhance aqueous solubility, dissolution and improve bioavailability of curcumin through the solid nanoemulsifying drug delivery system. The nanoemulsion was prepared by the high pressure homogenization method, using oil phase comprising of Soyabean oil, Tween 80 and Polyethylene glycol 400. The globule size, zeta potential and pH of prepared nanoemulsion was found to be 76.27nm, -16 mV, and pH 7.4 respectively. TEM studies revealed that the droplets were of size smaller than 200 nm and spherical. The release kinetic studies showed that the drug release followed Korsemeyer- peppas model. The 'n' value for curcumin nanoemulsion was found to be 1.0261; exhibiting non fickian diffusion super case II. Further, the formulated nanoemulsion was converted in to solid nanoemulsifying delivery of curcumin by adsorbing it on Neusilin and Fujicalin. Solid nanoemulsifying delivery system of curcumin along with Eudragit 100 LR, PVP K 30 was compressed into tablets. The invitro release studies exhibited increased release of curcumin from the formulated nanoemulsion (81.72%) and solid nanoemulsifying system of curcumin (98.32%) as compared to Curcumin (75.65%). Thus, the solid nanoemulsifying system of curcumin seems to be promising for increasing the solubility and bioavailability of curcumin.

**Keywords** - Curcumin, Nanoemulsion, Solid Nanoemulsifying drug delivery system, Solubility