

# Revolutionizing Skin Healthcare: Unleashing the Power of Nano- Emulgel as a Topical Lipidic Emulsion-Based Nanocarrier

Syed Shujaatullah Quadratullah<sup>1\*</sup>, Aijaz A. Sheikh<sup>1</sup>, K. R. Biyani<sup>2</sup>

<sup>1</sup>Department of Pharmaceutics, Anuradha College of Pharmacy, Chikhali, Buldana, India

<sup>2</sup>Principal, Anuradha College of Pharmacy, Chikhali, Buldana, India

**Abstract:** *The development of pharmacological compounds in drug research has yielded numerous therapeutic options for addressing healthcare concerns. However, a significant proportion of these medications are classified under the Biopharmaceutical Classification System (BCS) as class II or class IV, leading to their exclusion from the development process and restricted use in clinical settings. To address this limitation, a promising nano-technological method utilizing lipoidal manufacturing has emerged. This research paper proposes the utilization of a nanoemulsion-based gel, known as nanoemulgel, as a suitable administration route for BCS class II/IV medications. Nanoemulsions offer unique properties such as increased interfacial surface area and enhanced drug dissolution, while gels provide high viscosity and controlled drug release. However, the delivery of hydrophobic drugs remains a challenge for gels. To overcome this drawback, an emulsion-based technique is employed in nanoemulgel formulations. This approach enables the encapsulation of hydrophobic drugs within the lipid droplets of the nanoemulsion, harnessing the gelling properties of the formulation. The resulting nanoemulgel combines the advantages of both systems, facilitating improved drug solubility, bioavailability, and targeted delivery. By exploring the potential of nanoemulgel in delivering BCS class II/IV medications, this research aims to address the limitations associated with these compounds and provide a novel solution for their effective administration. The findings highlight the unique and creative application of nanolipoidal formulations, showcasing their scientific merit in overcoming drug delivery challenges and opening new avenues for therapeutic interventions.*

**Keywords:** Health care, topical route, BCS class II/IV, bioavailability, nanotechnology, nanoemulgel, emulsifiers, thickeners, hydro alcoholic

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