



IV. Symposium of Young Researchers on Pharmaceutical Technology, Biotechnology and Regulatory Science

January 19-21, 2022 - Szeged, Hungary

DOI: [10.14232/syrptbrs.2022.20](https://doi.org/10.14232/syrptbrs.2022.20)

Topical delivery of curcumin-loaded transfersomes gel ameliorated rheumatoid arthritis by inhibiting NF- κ B pathway

Eleesha Sana¹, Mahira Zeeshan¹, Qurat Ul Ain¹, Ashraf Ullah Khan¹, Irshad Hussain², Salman Khan¹, Elise Lepeltier³, Hussain Ali¹



1 Quaid-i-Azam University, Department of Pharmacy, Islamabad, Pakistan

2 Lahore University of Management Sciences, SBA School of Science & Engineering, Department of Chemistry & Chemical Engineering, Lahore Cantt, Pakistan

3 MINT, UNIV Angers, INSERM 1066, CNRS, Angers, France

Aim: To fabricate and evaluate curcumin-loaded transfersomes (Cur-TF) for the targeted delivery and enhanced therapeutic efficacy of curcumin for the treatment of rheumatoid arthritis (RA).

Methods: Modified thin-film hydration method was used to prepare Cur-TF which were then embedded into carbopol- 934 gel. They were further evaluated through in vitro techniques for their physico-chemical techniques and in an in vivo in arthritis model for their pharmacological activities.

Results: Cur-TF had optimal particle size, spherical morphology, high encapsulation efficiency and sustained drug release profiles. The Cur-TF gel had better in vitro skin penetration than plain curcumin. In vivo findings demonstrated improved clinical, histological and x-ray scores and reduced pro-inflammatory cytokines through NF- κ B inhibition.

Conclusion: Cur-TF gel delivered curcumin to the arthritic dermal tissue through a topical route and demonstrated promising therapeutic efficacy by significantly alleviating complete Freund's adjuvant (CFA)-induced arthritis.