DESIGN AND DEVELOPMENT OF INTRA NASAL *IN SITU* GEL - FORMING NANO STRUCTURED LIPID EMULSIONS OF CURCUMIN FOR BRAIN MALIGNANCIES

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ABSTRACT

Glioblastoma Multiforme (GBM), also known as glioblastoma is the most common form of brain tumor. Recent studies have reported that intranasally applied drugs can cross the blood brain barrier and reach the brain directly. In the present investigation, an attempt has been made to prepare curcumin loaded intra nasal *in situ* gel-forming lipid nanoemulsions to enhance the *in vitro* and *in vivo* stability and the availability of curcumin in brain. Nanoemulsion composition was prepared to yield a formulation which was liquid at room temperature and can transform to gel at 37°C. The composition was again optimized by factorial experiments and analysed for drug loading efficiency, gelation temperature and pH. Among these, composition G4 was selected and particle size, zeta potential and PDI were determined. The shelf life of the product at room temperature (25°C) and 60% RH was found to be 11.7 days, and half-life was 58.5 days, which is much greater than that of the pure drug in solution form.