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(57) Abstract :
The present invention relates to an improved pharmaceutical composition comprising celecoxib in solid dispersion form designed to overcome the inherent poor aqueous solubility and limited bioavailability of celecoxib. The invention employs a carefully optimized combination of water-soluble polymeric carriers, surfactants, and advanced processing techniques to create a solid dispersion system that significantly enhances the dissolution rate and systemic absorption of celecoxib. The formulation demonstrates superior pharmacokinetic parameters compared to conventional celecoxib preparations, enabling reduced dosage requirements while maintaining therapeutic efficacy. This technology addresses critical challenges associated with BCS Class II drugs by converting crystalline celecoxib into an amorphous or molecularly dispersed state within a carrier matrix, thereby dramatically improving its dissolution characteristics and oral bioavailability for effective treatment of inflammatory conditions and pain management.

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