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Formulation and Evaluation of Transdermal Patches of Atenolol

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Abstract: *Atenolol, a β_1-selective adrenergic receptor blocker, is widely used in the management of hypertension, angina pectoris, and other cardiovascular disorders. However, its oral administration is often associated with poor bioavailability (approximately 50%) due to first- pass hepatic metabolism and variable gastrointestinal absorption. To overcome these limitations, this study explores the formulation and evaluation of transdermal patches of atenolol as an alternative drug delivery system. Transdermal patches were prepared using various polymers, including hydroxypropyl methylcellulose (HPMC), ethyl cellulose (EC), and Polyvinyl pyrrolidone K30, using solvent casting techniques. The patches' physicochemical characteristics, stability, in vitro drug release, homogeneity of drug content, and skin penetration tests were all evaluated.*

Keywords: Atenolol transdermal patch, Transdermal atenolol delivery, Atenolol patch, Transdermal drug delivery system, Beta-blocker transdermal patch, Controlled drug release, Topical beta- blocker

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