Comparative Study of Polymeric Films for Sustained Transdermal Delivery of Metoprolol: Preparation, In Vitro and Ex Vivo Characterization

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SUMMARY. Aim of study was to select suitable polymeric combination for sustained transdermal delivery of highly water soluble drug metoprolol tartrate from matrix patches. Ethyl cellulose (EC) and Eudragit RS 100 (ERS) were used as film formers alone or in combinations with poly vinyl pyrrolidone (PVP) and Eudragit RL 100 (ERL) i.e. EC-PVP, EC-ERL and ERS-ERL. Patches were characterized for physical appearance, thickness, weight variation, moisture contents, moisture uptake capacity, FTIR, SEM, in vitro release and permeation studies across rabbit skin. Release and permeation kinetics followed Higuchi model but permeation rate was slow as compared to that of release. Higuchi release constant was increased by increase in PVP and ERL ratio. Patch of polymeric blend ERS-ERL (6:4) showed most satisfactory physical characteristics and sustained release pattern with permeation flux of 46.99 μg/cm²/h. Skin irritation studies in healthy volunteers revealed that ERS-ERL polymeric patches produced no skin erythema.

KEY WORDS: in vitro release, metoprolol tartrate, permeability, polymers, transdermal patches,

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