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## **FORMULATION AND CHARACTERIZATION OF TRANSDERMAL PATCHES OF TOLBUTAMIDE**

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### **INTRODUCTION:**

The Skin is one of the most extensive organs of the human body. This multilayered organ receives approximately one-third of all blood circulating through body. With a thickness of about a millimeter, the skin separates the underlying blood circulation network from the outside environment<sup>1</sup>.

Transdermal delivery of drugs through the skin to the systemic circulation provides a convenient route of administration for a variety of clinical indications. Transdermal delivery systems are currently available containing scopolamine (hyoscine) for motion sickness, clonidine and nitroglycerin for cardiovascular disease, fentanyl for chronic pain, nicotine to aid smoking cessation<sup>2</sup>.

Drug molecules in contact with the skin surface can penetrate by three potential pathways: through the sweat ducts, via the hair follicles and sebaceous glands (collectively called the shunt or appendageal route), or directly across the stratum corneum<sup>3</sup>

**All transdermal drug delivery systems consist mainly of -**

- Polymer matrix
- Drug
- Enhancers and other excipients
- Other excipient

## OBJECTIVES OF WORK

The proposed work was aimed to formulation and characterization of transdermal patches of tolbutamide for efficient transdermal delivery of drug in pharmaceutical system to enhance the antiplatelet effect of tolbutamide and produce additive antidiabetic effect of tolbutamide.

## METHODOLOGY

### Preformulation Studies:

- Spectroscopic analysis.
- Partition coefficient of drug.
- Drug excipient interaction.
- Melting point determination.

**Formulation of TDDS:** By solvent evaporation method

### Evaluation of TDDS:

- Thickness of the patch
- Weight uniformity
- Folding endurance
- Percentage Moisture content
- Percentage Moisture uptake
- Water vapor permeability
- Drug content
- Percentage Elongation break test
- Uniformity of dosage unit test
- In vitro drug release studies
- Drug Content Determination
- In vitro skin permeation studies

## IMPLICATIONS

1. Tolbutamide is metabolise in liver. Thus Avoidance of significant Presystemic metabolism (degradation in the GI tract or by the liver) and the need, therefore for a lower daily dose.
2. To minimize the adverse effects of tolbutamide by administrating it through transdermal route.
3. Avoidance of significant Presystemic metabolism (degradation in the GI tract or by the liver).
4. Drug levels can be maintained in the systemic circulation, within the therapeutic window (above the minimum effective concentration but below the maximum safe concentration), for prolong period of time.

## REFERNCES

1. Vyas, S. P., Khar, R. K., 2002. Controlled Drug Delivery: Concepts and Advances, Vallabh Prakashan, 1st ed., 411-447.
2. Jain, N.K., 1997. Controlled and Novel drug delivery CBS Publisher and distributor, 1 st ed., 100-126.
3. Jalwal, P., Jangra, A., Dahiya, L., Sangwan, Y., Saroha R., 2010. A review on transdermal patches. T. Ph. Res., 3, 139-1