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Formulation and Evaluation of Ofloxacin Gel for Wound Healing Activity

Kumari Babli*, Jaya Singh, Chanda Ray

Department of Pharmacy, Innovative College of Pharmacy, Greater Noida, Uttar Pradesh

Corresponding author email: karthikalalb348@gmail.com

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ABSTRACT

This research paper is about formulation and evaluation of ofloxacin gel for wound healing activity. In the current work an endeavor was made up to set up a gel of Ofloxacin utilizing polymer sodium alginate alone and with chitosan [2-Amino-2-deoxy-(1,4)-b-D-glucopyranan], of drug was enhanced. We use soaking method for preparation of gel turmeric (Indian saffron), glycerin [propane-1,2,3-triol] as copolymers. Permeability & Solubility. The ultimate goal of formulating gel with enhanced pharmacokinetic with ideal discharge of drug was prepared.

Keywords: Ofloxacin gel, Wound healing, Dermis

DESCRIPTION

In this paper i.e., Ofloxacin gel was prepared by soaking method. It has normal features and benefits over conventional dosage in better form. Gel rapidly get discharged on skin without giving friction. Neem and turmeric were used for wound healing [1].

Gel is a semi-solid formulation that has a pair of components which is liquid phase in rich. After the application of gel, the liquids are dried by the evaporation and, gels of drug are covering the skin.

When compared to the creams and other ointments gel give better drug release. These are highly bio-compatible, that's why minimum risk of adverse reaction and inflammation [2]. The dermatological use of gels has many properties as thixotropic, easily remove, non-greasy, desirable spreadable, non-staining, emollients, compatible with the many excipients.

Gels are semisolid systems that are a polar phase is constrained within a 3-dimensional polymeric matrix in which high degree of physical and sometimes chemical cross linking has been introduced. The polymers used in the preparation of pharmaceutical gels include natural gums, semi synthetic and synthetic materials [3].

Skin is the outermost part of our body. It is the largest organ which makes a barrier on the surface of the body.

Skin is defending the internal organ damage through the external atmosphere, external microbes and other elements.

Skin is maintains the body temperature and water loss through the sweat glands, also provide the touch sensation, hot, cold, and pinch [4].

The epidermal cells are consisting five types of layers as stratum basal, stratum spinosum, stratum granulosum, stratum lucidum, and stratum corneum. These layers of epidermal cells are responsible for the thick and thin skin.

Dermis is composed connective tissue, blood vessels, nerve, hair follicles, and gland. Dermis is categorized in to papillary region and reticular region. The papillary region is made up the one fifth part of total layer. It is also composed of connective tissue [5]. The dermis surface area is increased by a little finger like structures called dermal papillae.

Wound is defined as any damage or mechanism failure in the defensive mechanism of the skin due to external condition as surgery, cuts, and accidental. Due to damage condition the loss of consistent existence and change in the anatomy of the epithelial tissue or epithelium, may or may not loss of the latent connective tissue as like muscles, bone, and nerve. Types of the wound are also required for the diagnosis of these.

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Wound healing is the fundamental process that response to connective tissue. The Process of wound healing is the recovery of normal cells or tissue from the injured or damage tissue. Wound size and shape are also important for the incision or medication [6].

pH

The pH of gel formulation was determined by digital pH meter. Each formulation was done by triplet. At last, the value was calculated.

Viscosity study: Viscosity of this prepared formulation was determined by the using of rotational viscometer (fungi lab) with the spindle no. PA, PC, PB, PD, PE, PF [7].

Spread ability: The evaluation of spread ability of Ofloxacin gel was detected by measuring the diameter 2 gm of gel placed between the plates for 3 minutes and calculated by using of below formula.

$$S=M \times L/T$$

S=Spread ability (gcm^{-1}/sec)

M=Weight of tied gel on the upper plate

L=Length of glass slide

T=Time

Extrudability study: The extrudability was determined by extruding the gel from tube, 1cm gel extruded out in 30sec.

Melting point: Melting point of the drug was determined by Thiel's melting point apparatus and temperature at which the drug melt was noted [8]. Melting point was found to be 253-254 n (Table 1**)**.

SI. no.	Evaluation	Readings
1	Melting point(°C)	253-254
2	Drug content (%)	95.421
3	pH	7.485
4	Spread ability (in cm^2)	119.596
5	Extrudability	+++
6	Absorbance (λ max)	0.589

Table 1: Evalution parameter of ofloxacin gel prepared for wound healing.

CONCLUSION

The gel provides controlled delivery of drug with fine spread ability indicating their potential for delivery of drug through the skin the batch F3 and F6 show better result like drug release at half- life of its drug content antimicrobial effects, viscosity, spread ability was observed good.

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