



FORMULATION AND EVALUATION OF CETRIMIDE CREAM BY USING: NON IONIC SURFACTANT

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ABSTRACT:

Cetrimide belongs to class of primarily drugs antiseptic used to treat wounds, cuts, minor burns and protect against infection. In addition to this, it is also used to treat Sun burns spots seborrheic dermatitis and pimples while Cetostearyl alcohol is non ionic Surfactant which used as a Stabilizer, opacifying agent, as well as an aqueous and non-aqueous viscosity - increasing agent it imparts an emollient Feel to the skin. The present work based on preparation and evaluation of cetrimide cream by using non-ionic Surfactant which is safe and effective.

The Cetrimide Cream was Prepared by o/w (oil in water) type of method. 2.5gm of cetostearyl alcohol was dissolved in liquid Paraffin with the help of hot distilled water and 0.015gm of cetrimide was dissolved in water phase. at (60° to 70°c) temperature, then oily phase is dissolved in water Phase & Stirred continuously until emulsion is formed and cool to form a Semi-Solid cream.

KEYWORDS: Cetrimide, Wound Healing, Cream, Non-Ionic, Surfactant.

Introduction:

Creams are considered an important part of Cosmetics Product as topical preparation from time immemorial due to their easy of application to the skin & their removal.

The Aim of present study was to formulation and evaluation of cetrimide Cream by using & non ionic Surfactant. Pharmaceutical creams have variety of application Such as the Cleansing and beautifying appearance protecting against bacterial fungal infection as well as healing cuts burns wounds on the Skin these

Semi Solid preparation are safe for use by public and Society basically we have focused on the use of topical drug delivery system i.e. Pharmaceutical creams as Antiseptic and wound healing process suitable preparation method for cream and various evaluation test for creams.

Surfactants are chemical compounds that decrease the surface tension between two liquids, or the interfacial tension between a liquid and a solid. Surfactants may act as wetting agent detergents, emulsifiers, and foaming agents, The word "surfactant" is also called a surface-active agent

Nonionic surfactants are available in a wide variety of chemical structures. They are widely used in industry and various dosage forms for their attractive characteristics, like no toxicity, being economical and being eco-friendly. Nonionic surfactants have rich phase behaviors. It is used in cetrimide cream

Material and Method:-

Cetrimide is an antiseptic which is a mixture of , cetrimonium bromide It is creamy white, voluminous, free-flowing powder, a faint odour and has a bitter test. It is freely soluble in water but soluble in warm water and practically insoluble in solvent ether. It is used as a bactericide and astringent. Cetostearyl alcohol and liquid paraffin are used as emulsifying agents in this formulation. Purified water is act as a vehicle.

Procedure:

Weighed all the ingredients.

1. Dissolve cetostearyl alcohol at temperature 60-70°C in the liquid paraffin in one beaker(Oily Phase)
2. Another beaker at the same temperature dissolves cetrimide in purified water (Aqueous Phase).
3. Add first beaker preparation (Oily Phase) in warm condition to second beaker preparation(Aqueous Phase)
4. Stir the mixture until it cool.
5. Transfer in a suitable container slowly and then label it.

Table No 1
Composition of cream

Sr no	Ingredient	Formula % w/w. (50 gm)		
		F1	F2	F3
1	Cetrimide	0.013 g	0.014 g	0.015 g
2	Cetostearyl alcohol	0.4 g	0.5 g	0.6 g
3	Liquid paraffin	4 g	5 g	6 g
4	Methyl paraban	0.02 ml	0.02 ml	0.02 ml
5	Distilled water	50ml	50ml	50ml
6	Rose water	Qs	qs	qs

Table No 2
Functions of ingredient

Sr No	Ingredient	Function of ingredient
1	Cetrimide	Wound cleansing, seborroec dermatitis, minor burn
2	Cetostearyl alcohol	Emulsion stabilizer, Opacifying agent non ionic surfactant .
3	Liquid paraffin	Moisturizer, improve the texture of skin
4	Methyl paraban	Preservative
5	Distilled water	Solvent
6	Rose water	For fragrance

Evaluation test of cream:

pH of the Cream: The pH of the 10 % w/v of cetrimide cream was determined at 25 °C using a pH paper and pH meter, standardized using pH 4.0 and 7.0 standard buffers before use and the average of triplicates were determined.

Viscosity: Brookfield Viscometer with helipad stand was used for rheological studies. The sample (15g) was placed in a beaker and was allowed to stand for 5 min before measuring the dial reading using a spindle speed at 10,20,30,50.rpm. At each speed, the reading on the viscometer was noted. The spindle speed was successively lowered and the reading was noted. The measurements were carried out in triplicate at room temperature.

Spreadability

The spread ability is check by the cream is spread on balloon

Homogeneity: The formulation of cetrimide cream was tested for homogeneity by visual appearance and by touch on the skin.

Appearance: The appearance of the cream was judged by its colour, pearl scene and roughness and graded.

After feel: Emolliency, slipperiness and amount of residue left after the application of fixed amount of cream was checked.

Type of smear: After application of cream, the type of film or smear formed on the skin were checked.

Acid value:

Take 15 gm of substance dissolved in accurately weighed, in 50 ml mixture of equal volume of alcohol and solvent ether, the flask was connected to reflux condenser and slowly heated, until sample was dissolved completely, to this 1 ml of phenolphthalein added and titrated with 0.1N NaOH, until faintly pink color appears after shaking for 30 seconds. Acid value = $n \times 5.61 / w$ n = the number of ml of NaOH required. w = the weigh of substance.

Saponification value: Introduce about 2 gm of substance refluxed with 25 ml of 0.5 N alcoholic KOH for 30 minutes, to this 1 ml of phenolphthalein added and titrated immediately, with 0.5 N HCL. Saponification value = $(b-a) \times 28.05 / w$

Irritancy test: The cream was applied to the specified area, and time was noted. Irritancy, edema, was checked if any for regular intervals up to 24 hrs and reported.

Table No 2

Evaluation result of cetrimide cream

Formulation	pH	Acid value	Saponification value	Viscosity (CPS)	Adverse effect
F1	6.8	5.5	21.4	27019	NIL
F2	6.6	5.7	21.5	27021	NIL
F3	6.7	5.5	21.2	27023	NIL

Table No 3

Physical parameter of cetrimide cream on room temperature

formulation	parameter					
	Homogeneity	appearance	Spreadability	After feel	Type of smear	Removal
F1	**	NCC	**	E	NG	ES
F2	**	NCC	**	E	NG	ES
F3	**	NCC	**	E	NG	ES

** :Good, *:Satisfactory ,E:Emollient,NG: Non greasy ,ES :Easy ,NCC :Not change in colour

Conclusion:

Cetrimide cream are semi-solid preparation which are widely used by society In case of cuts, burns and wounds, topical formulations such as cetrimide creams are the most preferred for this treatment.

Hence,Cetrimide Cream was found Safe and effective for topical use.

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