

DEVELOPMENT OF AN OINTMENT OF POLY-HERBS USING JATROPHA, THEVETIA AND DATURA

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ABSTRACT - The a lot of plants reported as the anti-microbial property in traditional books and that plant survive easily and variants environment factors does not affected the growth of the plants due to the plants nature. The current studies are formation of a suitable dosages form of the drugs or any herbs extracts. Now the suitable dosage of the drug is ointment due to its pain free drug administering property. The suitable formula ointment formula is developed.

KEY WORDS: Ointment, Penetration, Dosage Form, Anti-Microbial

INTRODUCTION

Ointment is a homogeneous, viscous, semi-solid preparation, most commonly greasy, thick oil (oil 80% - water 20%) with a high viscosity that is intended for external application to the skin or mucous membranes. They are used as emollients or for the application of active ingredients to the skin for protective, therapeutic, or prophylactic purposes and where a degree of occlusion is desired. Ointments are used topically on a variety of body surfaces. These include the skin and the mucous membranes of the eye (an eye ointment), vaginal, anus, and nose. An ointment may or may not be medicated. Ointments are usually very moisturizing, and good for dry skin. They have a low risk of sensitization due to having few ingredients beyond the base oil or fat, and low irritation risk. There is typically little variability between brands of generics and name brand drugs. They are often disliked by patients due to greasiness.^[5]The vehicle of an ointment is known as the ointment base. The choice of a base depends upon the clinical indication for the ointment. The different types of ointment bases are: Hydrocarbon bases, e.g. hard paraffin, soft paraffin, microcrystalline wax and ceresin. Absorption bases, e.g. wool fat, beeswax. Water soluble bases, e.g. macrogols 200, 300, 400

Emulsifying bases. e.g. emulsifying wax, cetrimide. Vegetable oils, e.g. olive oil, coconut oil, sesame oil, almond oil and peanut oil. The medicaments are dispersed in the base, and later they get divided after the drug penetration into the living cells of skin.

Ointments are formulated using hydrophobic, hydrophilic, or water-emulsifying bases to provide preparations that are immiscible, miscible, or emulsifiable with skin secretions. They can also be derived from hydrocarbon (fatty), absorption, water-removable, or water-soluble bases.^[4]

MATERIAL AND METHOD

Selection of plant: Dhatura stramonium, Thevetia peruviana and jatropa belongs to family Solanaceae, Apocynaceae and Solanaceae is medicinally important plant, commonly grown in some parts of our country and used in the treatment of various disease and disorders of human ailments by tribal and rural people of our country. So, far no any systematic work was carried out to investigate the anti-bacterial activity of leaf of the selected plant therefore, the plant was selected for present investigation.

Collection of plant material: The leaves of the selected plant were collected in the months of July 2013 from the botanical gardens of Ujjain District of Madhya Pradesh.

Extraction of plant material: Procedure for Extraction of plants leaves by cold maceration:

- ϕ 25 gm. Of leaf powder drug was taken and dissolved in 500 ml of Ethanol in glass stoppered flask.
- ϕ Than solution was stirred with magnetic stirrer for 3 hours.
- ϕ Than solution was filtered and the filtrate was evaporated on water bath to get the extract.

Formulation of ointment

⊘ Chemicals	F1	F2	F3
⊘ Steric acid	14 gm	14 gm	14 gm
⊘ Cetyl alcohol	16 gm	16 gm	16 gm
⊘ Liquid paraffin	40 gm	20 gm	10 gm
⊘ Wight soft paraffin	30 gm	50gm	60 gm

Procedure for Ointment

- ⊘ All ingredients were weight properly.
- ⊘ The ingredients were mixed in decreasing order of melting point on the water bath for preparation of ointment base.
- ⊘ The solution was cool at room temp.

The powder drug (2 gm) was mixed throw spetula method.

Preliminary Phytochemical screening

The aqueous extract obtained after decoction of leaves was subjected to various Phytochemical screening as per the standard procedure to reveals various active

phytoconstituents.

1. **Tests for fixed oils and fats, Spot test** A small quantity of extract solution was separately pressed between two filter papers. Appearance of oil stain on the paper indicates the presence of fixed oil. Few drops of 0.5 N alcoholic potassium hydroxide was added to a small quantity of sample along with a drop of phenolphthalein, the mixture was heated on a water bath for 1-2 hours, formation of soap or partial neutralization of alkali indicates the presence of fixed oils and fats.

2. **Test for proteins and free amino acids** A small quantity of the extract solution was dissolved in few ml of water and treated with following reagents.

Million's reagent: Small quantity of extract solution was taken, added few drops of millions reagent red colour was obtained (mercury fuming nitric acid).

Biuret's test: Small quantity of extract solution was taken, added 5% of sodium hydroxide and 1% of copper sulphate solution pink or purple colour was obtained (sodium hydroxide and copper sulphate solution).

3. **Test for tannins.**

Ferric chloride solution: Treated the extract solution with ferric chloride solution, blue colour appears if hydrolysable tannins are present and green colour appears if condensed tannins are present.

4. **Test for Flavonoides**

Alkaline reagent test To the extract solution added few drops of magnesium hydroxide solution, intense yellow colour was formed which turn to colourless on addition of few drops of dilute acid indicated presence of Flavonoides.

Shinoda test To the extract solution added few magnesium turnings and concentrated hydrochloride drop wise pink, crimson red colour appeared after

5. **Carbohydrates:-**

Molisch's test:-To the extract solution added few drops of α -naphthol, and then added few drops of sulphuric acid through the side of test tube. Purple to violet colour appears at the junction.

6. **Glycosides**

Borntrager's test:-Boiled the extract solution with 1ml of sulphuric acid in test tube for 5 min. Filtered while hot. Cooled the filtrate and shake with equal volume of dichloromethane or chloroform. Saperate the lower layer of dichloromethane or Chloroform & shake it with half of its volume of dilute ammonia shows the presence of anthraquinone glycosides. A rose pink to red colour is produced in the ammonical layer few minutes.

7. **Alkaloids**

Dragendorff's reagent:-To the extract solution added few drops of Dragendorff's reagent (potassium bismuth iodide solution). Reddish brown precipitate obtained.

Mayer's reagent: - To the extract solution added few drops of Mayer's reagent (potassium mercuric iodide solution) Cream colour precipitate obtained.

8. Glycosides

Borntrager's test:-Boiled the extract solution with 1ml of sulphuric acid in test tube for 5 min. Filtered while hot. Cooled the filtrate and shake with equal volume of dichloromethane or chloroform. Separate the lower layer of dichloromethane or Chloroform & shake it with half of its volume of dilute ammonia shows the presence of anthraquinone glycosides.

Evaluation

Percentages yield: 2 gm of powdered drug deep in 15 ml solvent and shake four hour after that filter and evaporate the solvent and the yield found for required drug.

Viscosity: The viscosity is performed through the using of brookfeild viscometer.

Spreadability: 1 gm of ointment place on a slide and covered with another slide and apply the force (10 gm weight keep on slide).

Greatness: Three mice are taken and a portion's hairs are removed and a small amount of ointment is applied on skin regularly seven days and observed.

Organoleptic property: Color: The color is identified through the human sensation.

Odor: The odor is identified through the human sensation.

Skin irritation test: After the mice test the ointment apply on the ear of rabbit.

Membrane permeation: The test performed on a semi permeable membrane and found the ointment easily.

Orange peel test: The two same squared peels are placed. One is protect with apply the ointment and another one is allowed.

RESULT

The plant *Jatropha*, *Thevetia* and *Datura* are indigenous herb which was chosen for the present investigation study. The scanty availability of information on this plant facilitates the study on it. This attempt was made to study the pharmacognostical, phytochemical and antimicrobial activities of plant. The study was divided into three major parts viz.

Table no. 1 Extract yield and characterization

S/No.	Extract	Color of extract	Yield
1.	<i>Jatropha</i>	Dark brown	200 mg
2.	<i>Thevetia</i>	Blackish brown	180 mg
3.	<i>Datura</i>	Brown	210 mg

Phyto-chemical screening of powdered drug

Constituents	Test	<i>Jatropha</i>	<i>Thevetia</i>	<i>Datura</i>
Alkaloid	Mayer's test	+	+	+
	Dragendorff tet	+	+	+
Carbohydrate	Molish test	-	-	+
Glycoside	Borntrager's test	+	+	+
Fixed oil and fats	Spot test	+	+	+
Tannin Test	FeCl ₃	+	+	+
Protein Test	Million's test	+	-	-
	Biuret test	-	+	+
Flavonoids	Alkaline test	-	+	+
	Zinc HCl test	+	+	+

Phyto-chemical analysis

Parameter	Jatropha	Thevetia	Datura
Total ash (TA)	9%	10%	9.8%
Water Soluble ash (WSA)	3.5%	4.7%	3.1%
Acid insoluble ash (AIA)	2.8%	3.2%	2.5%
Moisture content (MC)	15%	10%	10%

Evaluation of ointment: The formulation F1 and F3 are not able to perform viscosity due to hardy in nature (F3), and a liquidity in nature (F1). These problems occur due to the incompatibility between the paraffin and liquid paraffin.

Bellowed all data show the F2 formulation

Viscosity: 6340 cp.

Spreadibility: A excellent spreadibility occur in formed formulation.

Greatness: No rashes are occurred in regular seven days.

Organoleptic property: Color: the ointment are brownish-yellowish in color

Odor: The ointment has a characteristic odor.

Skin irritation test: Non irritant

Membrane permeation: The test performed on a semi permeable membrane and found the ointment easily.

Orange peel test: the protected layer (peel) contains two times more moisture with respect to unprotected peel.

CONCLUSION

The prepared F2 formulation is pass the test of an ideal ointments character for formation of an ointment to achieve pain free medication.

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