



## PREPARATION AND EVALUATION OF HERBAL ANTI ACNE CREAM FROM THE EXTRACT OF “*RUBIA CORDIFOLIA*”

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### ABSTRACT

Herbal medications are considered safer than allopathic medicines because allopathic medications are associated with different side-effects such as allergy, local irritation, scaling, photosensitivity reaction, itching, peeling, redness etc. acne is a skin condition characterized by red pimples on the skin, especially on the face due to inflamed or infected sebaceous glands and prevalent chiefly among adolescents. The study includes macroscopical and microscopical evaluation of *rubia cordifolia*. The prepared formulation was optimized on the basis of in vitro release study. The optimized formulation was evaluated on the basis of greasiness, spreadability, after feel, skin irritancy, viscosity, pH and release kinetics. The study revealed that ethanol extract of *Rubia cordifolia*, possessed the potential for inhibiting acne. It was observed that the optimal formula of anti-acne moisturizer was satisfactorily effective to control acne inducing bacteria i.e., *E.coli* and *Pseudomonas*.

### INTRODUCTION

Cosmetics are defined as items with mild action on the human body for the purpose of cleaning, beautifying, and adding the attractiveness, altering the appearance, or keeping or promoting the skin or hair in good condition. Cosmetic products are used to protect skin against exogenous and endogenous harmful agents and improve the beauty and attractiveness of skin. Cosmetics are not only developing an attractive external appearance, but towards achieving long life of good health by reducing skin disorders.

#### COSMECEUTICALS

A cosmeceutical is an ingredient with medicinal properties which manifests beneficial topical actions. The herbal ingredients present in skin care products that supports the strength to the skin, integrity of

Skin and texture, moisturizing, maintaining elasticity of skin by reduction of collagen and photo protection etc. This character of cosmetic is due to presence of ingredients in skin care formulation, because it helps to reduce the production of free radicals in skin and manage the skin properties for long time.

#### Formulation of Anti-Acne Cream

The composition of anti-acne cream was shown in Table.1 The oil phase consists of stearic acid and other oil soluble component such as acetylalcohol and liquid paraffin were dissolved in the oil phase. The oil phase was placed inside the beaker in the water bath. The temperature of water bath was set to 75°C during the heating time. The water soluble components and preservatives (glycerine, methyl paraben and

thiethanolamine) were dissolved in the aqueous phase and heated in the same water bath at temperature 75°C. After heating, the aqueous phase was added in portions to the oil phase with continuous stirring until the cooling of emulsifier took place. A portion of *Rubia cordifolia* was mixed with the base along with fragrance respectively.

**Evaluation of Anti-acne Cream:** The following parameters were checked to evaluate the anti-acne cream:

**1. Determination of the type of emulsion**

A scarlet red dye was mixed with the cream. A drop of the cream was placed on microscopic slide and examined under a microscope. If the disperse globules appear red the continuous phase colourless, the cream is oil in water (o/w) type. The reverse condition is occurs water in oil (w/o) type cream.

**2. pH of the cream:** The pH meter was calibrated using standard buffer solution. About 0.5 g of the cream was weighed and dissolved in 50 ml of distilled water and its pH was measured.

**3. Homogeneity:** The formulation was tested for homogeneity by visual appearance and touch.

**4. Appearance:** The appearance of the cream was judged by its color, pearlescence and roughness and graded.

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

**6. Type of smear**

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

**7. Removal**

The ease of removal of the cream applied were examined by washing the applied part with tap water.

**8. Stability study**

The stability study was carried out by storing the anti-acne cream at three different temperatures which are at 8°C, 27°C and 40°C for 2 months.

**PHARMACOGNOSTICAL STUDIES:**

The present study on pharmacognostical characteristics of *Rubia cordifolia* provides useful information for its correct identity and help to differentiate from the closely related other species.

**Macroscopical Characters:**

**Color:** Grey colour

**Odor :** Mouldy moderately coarse

**Taste :** Bitter in taste

**Ash Values:**

Different ash values such as total ash, acid insoluble ash, water soluble ash and extractive values like water soluble and alcohol soluble extractive of *Rubia -cordifolia* were determined. The values are shown in table.

Plant parts	Total ash	Acid insoluble ash	Water soluble ash
Aerial parts	12.0%	2.75%	3.5%

**Table 1. Composition of the anti-acne cream containing *Rubia cordifolia* bark extract:**

	Amount (% W/W)
Active ingredients	
<i>Rubiacordifolia</i>	10%
Oily phase	
Stearic acid	20%
Cetyl alcohol	8%
Liquid paraffin	8%
Aqueous phase	
Glycerine	10%
Methyl paraben	0.05%
Thiethanolamine	0.05%
Distilled water	100%

**Extractive values:**

The percentage yield of *Rubia cordifolia* was determined by simple maceration technique by using different solvents and the values. The values are shown in the table.

Types of solvents	Extractive value
Water	9.2%
Ethanol	6.7%
Methanol	5.2%
Acetone	5.0%

**Moisture content:**

The moisture content of the powdered aerial parts of *Rubia cordifolia* was determined and shown in table.

Wt. of Powdered drug	Moisture content
2gm	14%

**Antibacterial activity:**

The ethanolic extracts were used to find antibacterial activity. These were given positive result for the study. The antibacterial studies were investigated by cup-plate method. The plant extracts were tested for antibacterial activity at a concentration of 10, 20,30,40,50 mg/ml Clindamycin was used as standard for the antibacterial activity.



**A. antibacterial activity of Escherichia coli.**

**B. Antibacterial activity of Pseudomonas aeruginosa.**

**Table 2. Physicochemical evaluation of the formulated anti-acne cream**

Parameter	Result
Homogeneity	Good
Appearance	No change in colour
Odour	Good
Spreadability	Good
After feel	Emollient and slipperiness
Type of smear	Non-greasy
Removal	Easy

S.NO	TEST -PATHOGEN	ZONE OF INHIBITION					Clindamycin
		VOLUME OF EXTRACTS					
		10mg/ ml	20mg/ ml	30mg/ml	40mg/ ml	50 mg/ ml	
1	<b>E.coli</b>	1.7	2.1	2.2	2.3	2.6	3.4
2	<b>Pseudomonas</b>	2.1	2.1	2.2	2.5	2.7	3.2

**SUMMARY AND CONCLUSION:**

The observed potential anti-bacterial activity of the formulations may be due to the presence of active constituents in the ethanolic extract of *rubia cordifolia*. The anti-bacterial activity was well maintained when it

was good sign for further studies to make this product into commercial standards. It has many beneficial properties such as antioxidant property, anti-inflammatory property and anti-bacterial property. In present scenario, there is a trend of prescribing combination therapy for

many diseases including skin diseases. This leads to and increase chances of drug interaction and adverse effects, means there is need to evaluate individual herbal therapy. *rubia cordifolia* as multiple axis to combat this problem and this will become a new approach in the management of acne. The pharmacognostical study of *rubia cordifolia* provides useful data for the correct identification of the plant. The plant was extracted with various solvents like water and ethanol. The obtained extract was screened for different phytoconstituents. The ethanolic extracts are showing very good reaction for carbohydrates alkaloids, volatile oils flavonoids tannins saponins fats and oils and aminoacids this may be reason for very good antibacterial activity .Among the various extract ethanolic extracts is having more number of active constituents.so this herbs extract is taken to investigate the antibacterial activity of the plants. This is claimed to be used as anti-inflammatory, antioxidant, treatment of acne and wound healing. The experiment results suggest that *rubia cordifolia* has potential antibacterial activity We recommend that the formulated cream can be successfully used for skin infections, after the confirmation of clinical and toxicological studies in future

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