



Formulation and Evaluation of Herbal Ointment Containing *Quisqualis indica* Linn Leaves Extract

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ABSTRACT

Present study was to extent ointment formulation by using herbal extract of Quisqualis indica linn leaves. First methanol and then water extract of Quisqualis indica linn leaves was prepared by maceration process. By using levigation method ointment base was prepared and extract was incorporated. Prepared formulation was analyzed for its physicochemical parameter like colour, odour, consistency, pH, melting point, spreadability, loss on drying, solubility, washability and penetration.

Key words: *Quisqualis indica* linn, Herbal ointment, Levigation, spreadability.

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INTRODUCTION

Ointments are semisolid systems which usually behave as viscoelastic materials when shear stress is applied. They generally contain medicaments and are intended to be applied externally to the body or to the mucous membrane. Non-medicated ointments commonly referred to as ointment bases meant for the preparation of medicated ointments or used as such for emollient or lubricating effects. In prescription practice, various other terms are also used as such for emollient used to designate several variation i.e. creams, pastes, cerates. Many medicaments meant for topical application to intact or broken skin or to mucous membranes, have been presented in the form of semisolid consistency variously designated as ointment, creams, salves, pastes etc and used mainly as protective or emollient for the skin. Modern day ointments too serve the purpose but they also carry the medicaments to the blood stream [1, 2, 3].

The products which are obtained from the natural source such as plants, microorganisms, animals or minerals is the basic needs of making drugs used for the treatment of disease which are synthesized now a days for the making of a novel drugs. In the ancient time the herbal medicines is the only source which are used for the treatment of most of the disease and today also in many places it have been using for healthcare purpose so we can say that the herbal medicines remedy is an traditional system of medicine which are used in medical practices since from antiquity. During the past two decades, there has been an increasing interest in the industrialized nations to use medicinal plants. Sources of details are pharmacopoeias, indigenous knowledge, scientific literature, and other documented sources. The practices continue today because of its biomedical benefits as well as place in cultural beliefs. In many parts of world and have made a great contribution towards maintaining human health. The demand of herbal medicines is currently increasing day by day because of the side effects of the Allopathic drug. India is a vast repository of medicinal plants that are used in traditional medical treatments. About 80% of people in developing countries still relays on traditional medicines which are based largely on plants and animals for their primary health care. Herbal products are defined as the materials that are administered to patients and are mixtures of herbal substances and other constituents which are made by using herbals. Herbal medicine has become more popular in recent era in the purpose of healthcare. Herbal medicines are generally regarded as safe based on their long-standing use in various cultures [4]. Total global herbal market is of size 62.0 billion dollars. European Union is the biggest market with the share 45% of total herbal market and the India's contribution is only one billion dollars. But there are positive signals also for us in the global market a fresh green leaf set off the clusters of pendent pink and white blossoms and the attractive appearance is enhanced by the delicious perfume [5, 6]. *Quisqualis*

indica linn is belonging to family Combretaceae. *Quisqualis indica* linn is used as antipyretic [7], anti-inflammatory [8], anti-staphylococcal [9], anthelmintic and antioxidant [10]. The main motto of this investigation was to formulate and evaluation of herbal ointment from the local medicinal plants.

MATERIAL AND METHODS

Collection of plant:

The whole plant of *Quisqualis indica* was collected in the month of November (2019) from near Ashokrao Mane College of Pharmacy, Kolhapur, Tal-Hatkangale, Dist- Kolhapur, Maharashtra, India. It was identified, confirmed and authenticated by Dr. M.Y. Bachulkar, Plant Taxonomist, Principal Shri Vijaysingh B. Yadav Arts and science college, Peth-Vadgaon.

Preparation of extract:

The leaves were washed with a normal tap water so that the stuck dirt particle had been washed and then dried in a shed area, after dried it had been crushed into small pieces for successive extraction process. About 80 gm of dry powder was taken in a soxhlet apparatus and firstly it was extracted with 400 ml methanol for about 8 days at 10-15 degree centigrade and further it was extracted with 400 ml distilled water after the collection of marc. The marc left after successive extraction was taken out and dried it separately under room temperature to get a dry mass i.e. free of solvent. The both final obtained extract was weighed, packed in a paper bags & stored in air tight container at cool place until use [11, 12].

Preparation of simple ointment base:

Sr. No.	Ingredient	Quantity
1	Wool fat	2.5 gm
2	Hard paraffin	2.5 gm
3	Cetostearyl alcohol	2.5 gm
4	White soft paraffin	42.5 gm

Table 1: Preparation of Simple ointment base

Preparation of *Quisqualis indica* ointment:

Sr. No.	Ingredient	F1	F2
1	<i>Quisqualis indica</i> drug extract	0.1gm	0.2gm
2	Simple ointment base	q.s to 10gm	q.s to 10gm
3	Lemon oil	q.s. to 10gm	q.s. to 10gm

Table 2: Formula of *Quisqualis indica* ointment

Evaluation test:

Preliminary test [13]:

Colour and Odour: Physical parameters like colour and odour were examined by visual examination.

Consistency: Consistency was evaluated by rubbing ointment on figure tips.

pH: pH of prepared herbal ointment was measured by using digital PH meter. The solution of ointment was prepared by using 100 ml of distilled water and set aside for 2hrs. PH was determined in triplicate for the solution and average value was calculated.

Melting point: The melting point was checked by digital thermometer.

Spreadability: The spreadability was determined by placing excess of sample in between two slides which was compressed to uniform thickness by placing a definite weight for definite time. The time required to separate the two slides was measured as spreadability. Lesser the time taken for separation of two slides results better spreadability.

Spreadability was calculated by following formula, $S = M \times L / T$

Where,

S= Spreadability

M= Weight tide to the upper slide L= Length of glass slide

T= Time taken to separate the slides

LOD:

LOD was determined by placing the formulation in petri-dish on water bath and dried for the temperature 105°C.

Solubility:

Solubility of ointment was checked in various solvents like boiling water, alcohol, ether and chloroform.

Washability:

Formulation was applied on the skin and then ease extend of washing with water was checked.

In-vitro test:**Penetration study:**

The rate of penetration of ointment is crucial in the onset and duration of action of the drug. Weighed quantity of the ointment was taken on onion membrane for a 30 min. Then the preparation left after 30 min. was collected and weighed. The difference between the initial and the final weights of the preparation gives the amount of preparation penetrated through the onion membrane rate of penetration of the preparation. The test was repeated twice.

Penetration Study: Initial weight- final weight

Test of rate of drug release:

A clean test tube was taken and the internal surfaces coated with the preparation as a thin layer. Saline is poured into the test tube. After a certain 30 min. time the saline is analyzed for the quantity of the drug. The amount of drug when divided by the time period gives the rate of drug release.

$$\% \text{CDD} = (\text{CDD} \times 100) / 10$$

RESULT AND DISCUSSION

Different formulations containing plants are used in folk system. Nowadays many of herbal ointment available in market to treat skin diseases [14]. The present study was done to prepare and evaluate herbal ointment. For this the methanolic extract was prepared by using simple maceration method to obtain a good yield of extract and there was no any harm to the chemical constituents and their activity [11]. The levigation method was used to prepare ointment [12]. The uniform mixing of the methanolic extract with the ointment base was occurred which was stable during the storage. Evaluation parameter of ointment such as spreadability, extrudability, washability and solubility shows acceptable results. The physicochemical properties of formulations enlisted in following table 3. This study was focused on preparation of herbal ointment using *Quisqualis indica* leave extract in combination with lemon oil. Formulation 2 shows the effective action than marketed preparation.

Physicochemical parameters	0.1gm dose	0.2gm dose	Marketed formulation (Iodex)
Colour	Green	Green	Light green
Odour	Characteristics	Characteristic	Characteristic
Consistency	Smooth	Smooth	Smooth
pH	6.2	6.0	6.0
Melting point	58	60	62
Spreadability (second)	5	7	7
Loss on drying	98.37%	98.81%	98.74%
Solubility	Soluble in boiling water, miscible with alcohol, ether, chloroform	Soluble in boiling water, miscible with alcohol, ether, chloroform	Soluble in boiling water, miscible with alcohol, ether, chloroform
Washability	Good	Good	Normal
Penetration	0.22	0.27	0.29

Table 3: Physicochemical evaluation of formulated ointment and marketed formulation

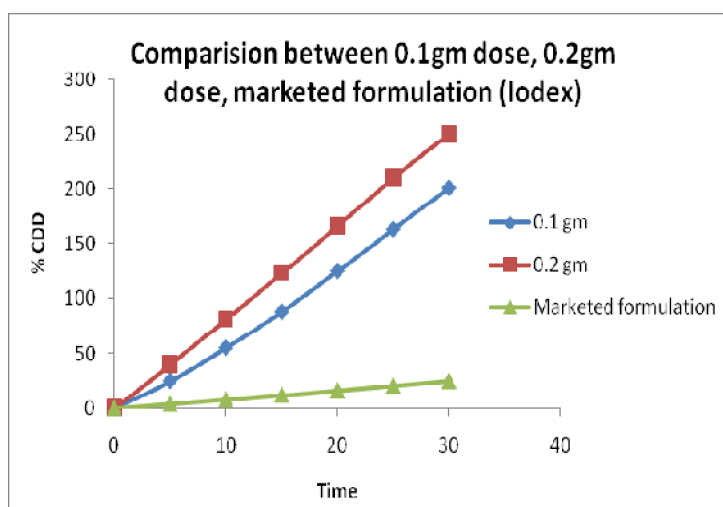


Figure 1: Comparison between 0.1 gm dose, 0.2 gm dose and marketed formulation (Iodex)

CONCLUSION

This study was focused on preparation of herbal ointment using *Quisqualis indica* leave extract in combination with lemon oil. Formulation 2 shows the effective action than marketed preparation. *Quisqualis indica* has variety of pharmacological action such as relieve pain caused by fever, headache, anti-ulcer, anti-inflammatory, anti-staphylococcal, anthelmintic and antioxidant. Thus this ointment would turn out to be a medium to utilize these therapeutic properties efficiently & simply as a simple dosage form. Prepared formulation with good grace spread on skin surface, no irritant, diffused well and was stable.

CONFLICT OF INTEREST

No conflict of interest.

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