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DEVELOPMENT AND EVALUATION OF ORAL HERBAL FORMULATIONS OF *LANTANA CAMARA* EXTRACT

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ABSTRACT:

In the present investigation, orally administrable dosage forms of Lantana camara extract were developed. Two formulations from liquid class were designed and developed. By considering difficulty of solubility of herbal drugs in a vehicle, in one of the liquid class, decoction form of drugs in specific vehicle was used. This form of drugs hereafter considered as Liquid Oral Dosage Form of drugs. To prepare a liquid form with suspended particles of drugs, Suspension form was also designed. Formulated dosage forms then subjected to evaluation by different methods stated as per official compendia. Evaluation parameters observed optimum range of formulations which suggest suitability of such oral herbal dosage forms for the formulation of Lantana camara extract.

Key Words: *Lantana camara, oral dosage form, herbal formulations, evaluation.*

INTRODUCTION

The oral route of drug administration is the most important method of administrating drugs for systemic effects. The topical route of administration is limited in its ability to allow effective drug absorption for systemic drug action. It is probable that most of drugs used to produce systemic effects are administered by the oral route [1]. Ayurvedic herbal formulations were also administered preferentially by oral route.

Oral solutions, syrups, elixirs etc., are prepared and used for the specific effects of the medicinal agents present. Some products are more effective in a liquid form and are used commonly by young children's or the elderly to overcome problem of swallowing the solid oral dosage forms [2]. Most of the orally administered Ayurvedic formulations belong to liquid form of drug or drug combination [3].

Lantana camara L. (Verbanaceae), commonly known as wild or red sage is the most widespread species of this genus and regarded both as a notorious weed and a popular ornamental garden plant [4]. However, it is listed as one of the important medicinal plants of the world [5]. *L. camara* contains lantadenes, the pentacyclic triterpenes which is reported to possess a number of useful biological activities. Several previous reports have described antifungal, [6, 7], whole plant and plant parts viz., leaves, flowers, and essential oils have been thoroughly studied for their chemical compositions, [8, 9] studies have revealed the presence of terpenoids, steroids, and alkaloids as major chemical constituents in *L. camara.* Designing of oral herbal formulations is till date a challenge in modern pharmaceutics. There are number of medicinal herbs in traditional system of medicine which are time tested, useful for the number of aliment. In present study the *Lantana camara* was selected for designing the possible modern formulations.

MATERIAL & METHODS

Materials:

Lantana camara obtained from local market and authenticated Sorbitol, tragacanth, glycerin, methyl and propyl paraben, starch and talc were purchased from Loba Chemicals Ltd. Mumbai. All other chemicals used were of analytical grade.

A. Preparation of Liquid dosage form:

Preparation of Liquid Oral:

500 g of dried extract was taken. Powder was mixed with 4000ml (4 liter) of water. The powdered material was boiled until total volume become one fourth of previous. After boiling liquid was cooled and filtered. Filtrate was taken to prepare final Liquid Oral form.

Preparation of Simple Syrup:

850 g. of sucrose was dissolved in sufficient water to get 1000 ml of concentrated simple syrup.

Then the solution was filtered. This simple syrup was used as vehicle. To prepare final Liquid Oral of extract one part of decoction was mixed with five parts of Simple Syrup **(1: 5)**. Solubility was checked by observing the clarity of solution visually. The final Liquid Oral form of extract was then subjected to evaluation of different parameters as per official standards.

B. Preparation of Suspension dosage form:

The suspension of *Lantana camara* extract was prepared as per the formulae shown in **Table 1**. Particles of extract are properly mixed by triturating. 5 ml of sorbital solution was mixed with 25 ml of glycerin. The powdered form of drug was wetted thoroughly with sorbital and glycerin

solution to reduce liquid–air interfacial tension. The suspending agent, tragacanth in the aqueous medium containing selected preservatives was then added in to the wetted mass slowly, with continuous triturating. Three possible formulations of Suspension viz. LS1, LS2 and LS3 were prepared by using 5ml, 7.5ml and 10ml of 1.25% aqueous tragacanth solution respectively. Finally suspension brought up to the final volume with purified water by continuous trituration so as to get uniform product. All three possible forms of suspension of extract were then subjected to evaluation of production quality as per official standards.

Evaluation of Quality Parameters:

Evaluation of Liquid Oral

The different parameters of decoction and final Liquid Oral were assessed such as pH, specific gravity and density. Stability study of final Liquid Oral was carried out at different temperature and at relative humidity [10, 11].

Evaluation of Suspension

The three forms of Suspension (LS1, LS2 and LS3) were evaluated for rate of sedimentation. Stability study of the final suspension was carried also carried out [10, 11].

RESULT AND DISCUSSION

The primary objective of this work was to oral herbal dosage form of *Lantana camara* extract. The development of such formulations will mark an important advancement in the area of phytopharmaceuticals. The present investigation examines design & development of liquid oral herbal dosage form. The liquid oral herbal dosage forms like Liquid Oral & Suspension prepared showed good elegance. The Liquid Oral evaluated for measurement of pH, specific gravity & stability. The final formulation found to have pH 4.4 and specific gravity 1.15 g/ml (**Table 2**). The results of stability study of final Liquid Oral form of drugs indicate the homogeneity of syrup without turbidity at

storage temperature. The suspension dosage form showed good palatability. The final formulation has pH 4.2 and specific gravity 1.37 g/ml. Three possible forms of suspension were evaluated for sedimentation ratio. LS3 form of suspension shows sedimentation ratio 1.6 after 270 min. which is better than S1 and S2 form of suspension (**Figure 1**). All forms of suspension although shows easily dispersible pattern. The stability study of LS3 form of suspension indicates retaining stability at room temperature also.

Table 1: Formulae of different suspension of extract.

S. No.	Ingredients	Formulations		
		LS1	LS2	LS3
1	Extract	50 gm	50 gm	50 gm
2	Sorbitol Solution {0.5 %}	5 ml	5 ml	5 ml
3	Glycerin	25 ml	25 ml	25 ml
4	Aqueous Tragacanth Solution (1.25 %)	5 ml	7.5 ml	10 ml
5	Methyl Paraben	0.9 gm	0.9 gm	0.9 gm
6	Propyl Paraben	0.3 gm	0.3 gm	0.3 gm
7	Purified Water	Up to 1000 ml	Up to 1000 ml	Up to 1000 ml

Table 2: Quantitative evaluation of Liquid Oral Form of extract.

S. No	Parameters	Observed Values
1	pH of Decoction	4.4
2	Specific Gravity of Decoction	1.37g/ml
3	Density of Decoction	1.28 g/cm3
4	pH of Final Liquid Oral	4.2
5	Specific Gravity of Liquid Oral	1.15 g/ml
6	Density of Liquid Oral	1.12 g/cm3

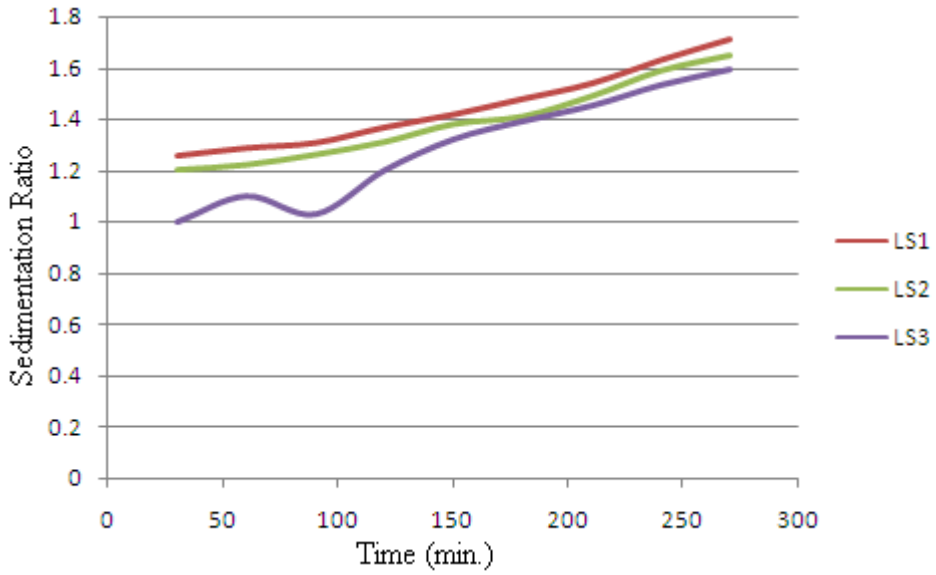

Figure 1: Comparative rate of sedimentation of different suspension form.

CONCLUSION

Oral herbal dosage forms of *Lantana camara* extract showed good elegance & palatability. Liquid dosage forms like Liquid Oral & Suspension having good stability on storage. Thus it can be concluded that these oral herbal dosage forms could be suitable dosage form for *Lantana camara* extract for commercial purpose.

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