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Research Article

DEVELOPMENT AND EVALUATION OF HERBAL SYRUP FROM ROOT EXTRACT OF NOTHOSAERVA BRACHIATA & GOMPHRENA CELOSIODIES

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ABSTRACT

Medicinal plants are used to treat various ailments from time immemorial. There are very limited options available to treat the kidney stone. So two medicinal plants viz. Nothosaerva brachiata & Gomphrena celosiodies were selected to formulate herbal formulation which have been reported to be used in kidney stones in traditional literature. The part of plant selected was root by referring to the literature. The plant roots were powdered and most suitable dosage form found to be developed was syrup so herbal syrup was formulated. The syrup formulation was then evaluated for different parameters prescribed according to official compendia.

Keywords: Herbal syrup, Nothosaerva brachiata, Gomphrena celosioides.

INTRODUCTION

Medicinal plants are being used since time immemorial are considered to be rich source of therapeutic agents for prevention of diseases[1]. The treatment of kidney stone with herbs should be focused more because it does not have major side effects[2]. The plant Nothosaerva brachiata is described as a Pashanabheda in Ayurveda. It is meant for skin diseases, stomach ache, astringent and antiseptic[3]. The decoction of whole plant of Gomphrena celosiodies is used for regulating fertility and piles, while juice is given in kidney stone. The G. celosioides roots are chewed in cough and an aqueous extract of G. celosioides is reported to inhibit the proliferation of S. aureus, S. pyogene, E. coli, S. typhi, C. albicans and P. aeruginosa in vitro[4-5].

The advantage of oral route is that it's the simplest, convenient and safest route. Drugs can be taken as tablet, capsules and in liquid form. Most drugs are well absorbed by oral route if administered along with food. Syrups are best of all liquid oral formulation. Because they are sweet, people who are unfamiliar with bitter taste, syrup provides a good introduction to the world[6-7].

Formulation of oral herbal formulation is a till date challenge in modern pharmaceutics. There are number of medicinal plants in traditional system of medicine which are time tested and useful for number of ailments[8]. So above mentioned both plants were selected for formulating an effective poly herbal formulation for kidney stones.

MATERIALS AND METHODS

Plant material

The roots of Nothosaerva brachiata & Gomphrena celosioides were collected from vicinity of Tirunelveli, Tamil Nadu. It was authenticated by V. Chelladurai, Retd Govt botanist, Tirunelveli.

Development of Herbal syrup

Method of preparation of decoction: 250 g of each Nothosaerva brachiata and Gomphrena celosioides dried root powder was taken. Powder was mixed with 4000 ml of water. The powdered material is boiled until total volume became one fourth of the previous. After boiling it was cooled and filtered. Filtrate was taken to prepare final herbal syrup[9].

Method of preparation of Simple syrup USP
666.7 g of sucrose was weighed and added to purified water and heated until it dissolved with occasional stirring. Sufficient boiling water was added to produce 1000 ml.
To prepare final herbal syrup, one part of decoction was mixed with five parts of simple syrup (1:5). Required quantity of methyl paraben and peppermint oil was added to the above mixture. Solubility was checked by observing the clarity of solution visually. The final developed syrup was then subjected to evaluation for production quality as per the official standards.

Evaluation of Herbal syrup
The herbal syrup was evaluated for various parameters such as physical appearance (color, odor, taste), pH, weight per ml and viscosity[10]. Stability study of herbal syrup was carried out at different temperature and at relative humidity[11-12].

Table 1: Physical appearance of developed poly herbal syrup dosage form

Sr. No.	Parameter	Result
1	Color	Brownish yellow
2	Odor	Pleasant
3	Taste	Sweet

Table 2: Quantitative evaluation of developed poly herbal syrup dosage form

Sr. No.	Parameter	Observed value
1	pH of decoction	5.9
2	Specific gravity of decoction	1.2736 g/ml
3	Density of decoction	1.354 g/ cm^3
4	pH of Final herbal syrup	5.87
5	Specific gravity of Final herbal syrup	1.1722 g/ml
6	Density of Final herbal Syrup	1.218 g/cm^3

Table 3: Result of stability testing of Herbal drug syrup dosage form

Sr. No.	Sample No.	Time Duration (hr)	Temperature (°C)	Turbidity/Homogeneity	Color/Odor
1	A1	24	4°C	No Turbidity	No Change
2	B1	24	RT	X	No Change
3	C1	24	47°C	Homogeneity	No Change
4	A2	48	4°C	No Turbidity	No Change
5	B2	48	RT	X	No Change
6	C2	48	47°C	Homogeneity	No Change
7	A3	72	4°C	No Turbidity	No Change
8	B3	72	RT	X	No Change
9	C3	72	47°C	Homogeneity	No Change

RESULT AND DISCUSSION

The basic objectives of this work was to develop poly herbal syrup from roots of Nothosaerva brachiata and Gomphrena celosioides. The development of such herbal syrup will mark an important advancement in the area of kidney stone treatment. The present investigation examines development and evaluation of herbal syrup. The formulated herbal syrup was found to be clear without particles and sweet in taste hence palatable too. The developed herbal syrup was evaluated for stability studies for 24, 48 and 72 hours with varying temperature of 4°C, Room temperature and 47°C. There was no change observed in either color or odor of the formulated syrup. It did not produce turbidity at lower temperature of 4°C. It was clear homogenous liquid without turbidity at higher storage temperature of 47°C too. Thus it can be concluded that the herbal syrup was the suitable form which was developed.

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