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Current Trends in Pharmacy and Pharmaceutical Chemistry

Journal homepage: https://www.ctppc.org/

Original Research Article

Formulation and evaluation of medicated herbal syrup of madar (calotropis gigantea) extract

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ARTICLE INFO

Article history:
Received 20-06-2023
Accepted 24-07-2023
Available online 12-08-2023

Keywords:
Formulation
Evaluation
Syrup
Madar
Calotropis Gigantea

ABSTRACT

Calotropis gigantea also in Indian system known as Madar plant, the weed is also known as giant weed. Trees of the family Apocynaceae include latex-bearing trees and are mainly endemic to Indian Asian subcontinent countries. In recent decades C. Gigantea is extensively studied and found to possess many bioactive compounds. This plant has been reported for several pharmacological properties such as analgesic activity, antibacterial activity, antioxidant activity, antipyretic activity, insecticidal activity, cytotoxic activity, and cytotoxic activity. Hepatoprotective, pregnancy-preventing, cleansing properties, procoagulant and curative activity. The study focused on the formulation and evaluation of herbal medicinal syrups from C. gigantea. Four herbal syrups have been prepared with an optimized F4 formulation and can be developed on a commercial scale.

1. Introduction

Medicinal Plants: Plants with desirable and undesirable pharmacological activities can be called medicinal plants. At present, it has been established that plants normally synthesize and collect a number of optional metabolites, similar to alkaloids, glycosides, tannins, volatile oils, and contain minerals and nutrients, which have specific characteristics.[1]

Calotropis Gigantea: In Ayurveda the herb Calotropis gigantea is also known as "Sweta Arka" and Caotropis procera as "Raktha Arka".[2] Calotropis gigantea Linn exhibits a variety of pharmacological effects for animal and human consumption such as antipyretic activity, cytotoxic activity, antibacterial activity, insecticidal activity, and wound healing activity. brand, CNS potency and load containment properties. Plant latex has been reported to have laxative properties, anticoagulant activity, wound healing activity and antibacterial activity. The stem has been reported to have hepatotoxic effects. This plant is native to India, and Indian subcontinental countries. The plant has pale green oval leaves, milky white stems and clusters of waxy white or lavender flowers.

2. Herbal Syrup

Herbal syrup is prepared by herbal extract decoction with appropriate herbal excipients such as flavored sugar syrup, preservatives such as regenerated alcohol, flavoring, and herbal additives. To increase the shelf life of the prepared formulation it was mixed with sugar helps to build the viscosity and as natural preservative. Herbal syrup contains extracts of medicinal plants. Several herbal and medicinal syrups have been prepared and evaluated by Nerkar et al.[3–6]

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https://doi.org/10.18231/j.ctppc.2023.021

3. Description of the Plant

3.1. Calotropis Gigantea (madar)

Fig. 1:

Taxonomical classification Kngdom : Planatae
Subkingdom: Tracheobionta
Superdivision: Spermatophyta
Division: Magnoliophyta
Class: Dicotyledones
Sub class: Asteridae
Series: Bicarpellatae
Order: Gentianales
Family: Apocynaceae
Subfamily: Asclepidiaceae
Genus: Calotropis
Species: Calotropis gigantea
Synonym
Common names: Giant Milkweed, Crown Flower, Swallow Wort.
Hindi: Safed aak, Aak, Alarkh, Madar, Sveta Arka, Akanda, Bara Akand
Gujarati: Aakando
English: Crown flower, giant Indian milkweed.Bowstring hemp, crownplant, madar
Malaysia: Remiga, rembega, kemengu.
Indonesia: Bidhuri (Sundanese, Madurese), sidaguri (Javanese), rubik (Aceh).
Philippines: Kapal-kapal (Tagalog).
Laos: Kok may, dok kap, dok hak.
Thailand: Po thuean, paan thuean (northern), rak
French: Faux arbre de soie, mercure vegetal

4. Chemical Constituents

Phytochemical of C. giagantea include Cardenolide, triterpinoids, alkaloids, resins, anthocyanins and proteolytic enzymes in latex, flavonoids, tannins, sterol, saponins, cardiac glycosides. Flowers contain-terpenes, multiflorenol, and cyclisadol. Further it contains triterpenes, a new norditerpenyl ester, calotropfriedelenyl acetate, akundarol isovalerate, mundarol isovalerate and quercetin -3-rutinoside

Table 1: Role of ingredients in herbal syrup.

S.No.	Ingredients	Role
1.	Calotropis Gigantea extract	Antioxidant, free radicals, Scavenging, Anticancer
2.	Orange oil	Flavoring agent
3.	Sugar base invert	Preservatives
4.	Alcohol	Preservatives
5.	Amaranth red	Coloring agent

5. Materials and Methods

Herbal syrup is prepared by the method of decoction. The steps are as follows. Calotropis Gigantea Extract was obtained as a fine extract from Herbal Creations Pvt Ltd. The extract was prepared with an ethanol extracted by the Soxhlet extraction method. Furthermore, the extract was filtered and the extracts of the quantities used as shown in the table were used to prepare formulations F1 to F4. All extracts were mixed together and 50ml of syrup was obtained. Dyes, flavoring agents are added to it. Refer Tables 2, 3, 4 and 5 and the evaluation parameters are recorded in Table 6.[7–10] for more details.

Table 2: Formulation 1 (F1) – For 50ml.

S.No.	Ingredients	Quantity
1.	Calotropis Gigantea Extract	7ml
2.	Orange oil	5ml
3.	Sugar base invert	38ml

Table 3: Formulation 2 (F2) – For 50ml.

S.No.	Ingredients	Quantity
1.	Calotropis Gigantea Extract	5ml
2.	Orange oil	2ml
3.	Sugar base invert	33ml
4.	Alcohol	10ml

Table 4: Formulation 3 (F3) – For 50ml

S.No.	Ingredients	Quantity
1.	Calotropis Gigantea Extract	8ml
2.	Orange oil	2ml
3.	Sugar base invert	33ml
4.	Alcohol	7ml

The following evaluation parameters were performed on formulation 4 (F4).

1. Density: It was measured by Weighing Bottle method.
2. Specific gravity: It was measured by Ostwald's Viscometer.

Table 5: Formulation 4 (F4) – For 50ml

S.No.	Ingredients	Quantity
1.	Calotropis Gigantea Extract	15ml
2.	Orange oil	4ml
3.	Sugar base invert	20ml
4.	Alcohol	11ml

Table 6: Evaluation of herbal syrup

S.No.	Parameters	F1	F2	F3	F4
1.	Density	1.50gm.	1.43gm	1.29gm	1.50
2.	Specific gravity	0.6289	0.6195	0.6135	0.6135
3.	Viscosity	3.75cp.	3.67cp	3.66cp	3.66cp
4.	pH determination				
	a) pH paper	Neutra	Neutra	Neutra	Neutra
	b) pH meter	1 7.01	1 7.44	1 7.54	1 7.61
	Organoleptic characters:				
5.	a) Color	Reddish	Reddish	Reddish	Reddish
	b) Odor	Aromatic	Aromatic	Aromatic	Aromatic
	c) Taste	Sweet	Sweet	Sweet	Sweet
	d) Apperance	Turbid	Turbid	Clear	Clear

3. Viscosity: It was measured by Ostwald's Viscometer.

6. Result and Discussion

The formulation F4 was optimized at the laboratory scale. The formulation can further be technology transferred for bulk and industrial production of herbal syrup of C. gigantea. The formulation is evaluated for stability and optimized for qualitatively with various parameters as per literature.

7. Conclusion

The Herbal formulation of C. gigantea was formulated, evaluated, and can be adopted for batch production on an industrial scale.

8. Source of Funding

None.

9. Conflict of Interest

None.

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Cite this article: Nerkar AG, Pansare A. Formulation and evaluation of medicated herbal syrup of madar (calotropis gigantea) extract. *Curr Trends Pharm Pharm Chem* 2023;5(3):94-96.