

FORMULATION AND EVALUATION OF CARICA PAPAYA LEAF EXTRACT HERBAL SYRUP FOR THE TREATMENT OF DENGUE***Himanshu Patidar, Mamta Ahirwar, Satyaendra Shrivastava**

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ABSTRACT

The present study deals with the formulation and evaluation of herbal syrup prepared from Carica papaya leaf extract for dengue management. Dengue is a mosquito-borne viral disease that leads to a decrease in platelet count. Papaya leaf extract is known for its platelet enhancing activity. The prepared syrup was evaluated for organoleptic properties, pH, viscosity and stability. The results showed that the formulation was stable, safe and suitable for oral use.

KEYWORDS: Carica papaya, Dengue, Herbal syrup, Platelet count.

INTRODUCTION

Dengue is a viral disease transmitted by Aedes aegypti mosquito. It is one of the major public health problems in tropical

countries. The disease is characterized by high fever, headache, muscle pain and decreased platelet count.

Herbal medicines are gaining importance due to their safety and effectiveness. Carica papaya leaves contain phytochemicals such as flavonoids, alkaloids and phenolic compounds which help in increasing platelet count and boosting immunity.

The present study aims to formulate and evaluate a herbal syrup using papaya leaf extract for dengue treatment.

Aim

To formulate and evaluate a herbal syrup of *Carica papaya* leaf extract for the supportive treatment of dengue.

Carica papaya

Carica papaya, commonly known as papaya, is a well-known medicinal plant belonging to the family *Caricaceae*. The leaves of the plant are widely used in traditional and herbal medicine due to their significant therapeutic properties. The dried and powdered form of papaya leaves, commonly referred to as *Cerica Papaya Powder*, is used as an active ingredient in various herbal formulations.

Papaya leaf powder contains several important bioactive constituents such as alkaloids (carpaine), flavonoids, phenolic compounds, enzymes (papain and chymopapain), and vitamins. These constituents are responsible for its pharmacological activities including antioxidant, anti-inflammatory, and immunomodulatory effects.

2. MATERIALS AND METHODS

2.1 Experimental Requirements

Experimental requirement Papaya Powder were obtained from marotiya bazar.

2.2 List of Equipment

Ostwald viscometer, sieve, pH meter, mixer grinder, and heating mantle were used.

2.3 Preparation of Formulation

Extraction (Decoction Method)

The powder was taken and boiled with distilled water. After boiling, it was cooled and filtered to get a clear extract.



Fig. 1: Dry Powder of carica papaya.



Fig. 2: Decotion method.

Formulation of Syrup

The extraction of *Carica papaya* leaves is carried out to obtain the active phytoconstituents like Flavonoids, alkaloids (especially carpaine), and other therapeutic compounds that are useful in the Treatment of dengue and related ailments. Fresh or shade-dried papaya leaves are collected and washed thoroughly to remove dust and impurities. The leaves are then either crushed directly (in the case of juice extraction) or ground into a coarse powder if dried. In aqueous extraction, about 50 grams of powdered leaves are added to 500 ml of distilled water and heated on a water bath at 60–70°C for about 2 hours with occasional stirring. The mixture is then cooled and filtered using Muslin cloth or Whatman filter paper to obtain a clear green extract. The filtrate may be concentrated by gentle heating or left to evaporate naturally under shade. In ethanolic extraction, the powdered leaves are soaked in 70% ethanol for 48–72 hours in a closed container with occasional shaking. After maceration, the extract is filtered and the ethanol is evaporated using a rotary evaporator or gentle heating to yield a concentrated extract. The final extract is stored in an amber-colored airtight container in a cool and dry place to preserve its medicinal properties. This extract can be further used for pharmacological testing or formulation into syrups, tablets,

Table No. 1: Formulation of *Convolvulus pluricaulis* *Asparagus racemosus* Herbal syrup.

Sr. No.	Ingredients	Batch A	Batch B	Batch C
1	Papaya leaf extract	5 ml	10 ml	15 ml
2	Simple syrup	5 ml	10 ml	15 ml
3	Glycerin	1.5 ml	1.5 ml	1.5 ml
4	Honey	3 ml	5 ml	8 ml
5	Sodium Benzoate	0.1%	0.1%	0.1%
6	Guar Gum	0.5 gm	0.5 gm	0.5 gm
7	Lemon grass Oil	2-3 drops	2-3 drops	2-3 drops
8	Distilled Water	q.s	q.s	q.s

2.4.1 Organoleptic Property

Prepared syrup of *Asparagus racemosus* and *Convolvulus pluricaulis* was observed for its colour, appearance, odour and taste. The syrup was light brown in colour, clear in appearance, having characteristic odour and sweet taste.

2.4.2 Flavonoids Test

1 ml of the herbal extract was taken in a test tube and 2 ml of 1% sodium hydroxide solution was added. Formation of yellow colour indicated the presence of flavonoids.

2.4.3 Determination of pH

The pH of the prepared syrup was determined using a digital pH meter. The readings were taken three times and average value was noted.

2.4.4 Solubility

The prepared syrup was checked for its miscibility with water. It was found to be completely miscible without any separation.

2.4.5 Determination of Density

Density of the syrup was determined using a specific gravity bottle. The bottle was cleaned, dried and weighed. Then it was filled with syrup and weighed again to calculate density.

2.4.6 Viscosity

Viscosity of the syrup was determined using an Ostwald viscometer. The instrument was cleaned properly before use and flow time of the syrup was recorded.

2.4.7 Stability Study

The prepared syrup was stored at $40 \pm 2^\circ\text{C}$ and $75 \pm 5\%$ RH. The samples were checked at different intervals (0, 7, 14 and 21 days) for changes in colour, odour and taste. No significant changes were observed.

RESULTS AND DISCUSSION Evaluation parameters

Table No. 2: Organoleptic characteristics features of syrup.

Features	F1	F2	F3
Colour	Light Brown	Light Brown	Light Brown
Odor	Characteristics	Characteristics	Characteristics
Taste	Sweet	Sweet	Sweet

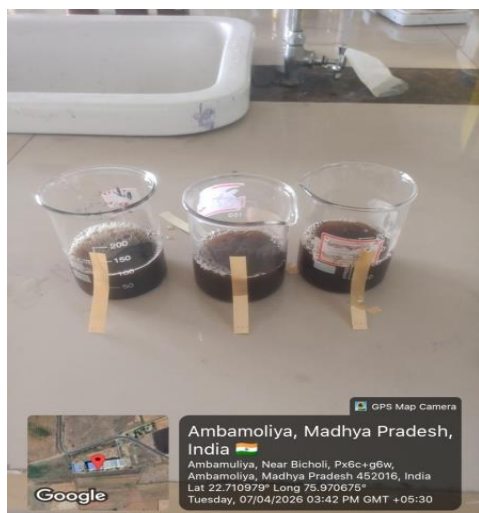


Fig. No. 3: Estimation of Ph.



Fig. No. 4: Determination of viscosity.



Fig. No. 5: Determination of density.



Fig. No. 6: Solubility test.

Table No. 3: Estimation of pH, solubility, Density & Viscosity.

Features	F1	F2	F3
Ph	5.8	5.9	5.7
Solubility	Soluble in methanol and water	Soluble in methanol and water	Soluble in methanol and water
Density	0.82g	0.84g	0.79g
Viscosity	3.64cp	3.62cp	3.66cp

SUMMARY

The present study focuses on the formulation and evaluation of a herbal syrup containing Carica papaya leaf extract for the treatment of dengue. Carica papaya leaves are well known for their platelet-enhancing and immunomodulatory properties, which are beneficial in managing dengue fever. The syrup was prepared using papaya leaf extract along with suitable excipients such as sucrose, glycerin, honey, and preservatives to improve stability, taste, and patient compliance.

The formulated syrup was evaluated for various physicochemical parameters like pH, viscosity, color, taste, and stability. The results indicated that the formulation was stable, palatable, and within acceptable limits. The herbal constituents present in the formulation contribute to increasing platelet count and reducing symptoms associated with.

CONCLUSION

The developed *Carica papaya* leaf extract herbal syrup showed satisfactory results in terms of formulation and evaluation parameters. It can be concluded that the syrup is safe, effective, and suitable for use as a supportive treatment in dengue management. The natural herbal formulation offers advantages such as fewer side effects, better patient acceptability, and cost-effectiveness.

Further clinical studies are recommended to confirm its therapeutic efficacy and to establish it as a standard herbal treatment for dengue.

Uses (Extended)

1. *Carica papaya* (Papaya Leaf)

- Increases platelet count (anti-thrombocytopenic)
- Supports immune system function
- Helps in recovery from dengue fever
- Reduces body pain and inflammation
- Improves digestion and liver function
- Acts as antioxidant (reduces oxidative stress)

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