



Research Article

PHYTOCHEMICAL STANDARDIZATION OF *CHUNDAI VATTRAL DHIRAVAGAM*: A  
TRADITIONAL SIDDHA DISTILLED FORMULATION

Somesh Balaji. S<sup>1\*</sup>, J. Sriram<sup>2</sup>, K. Shyamala<sup>2</sup>, T. Maharasi Maniselvi<sup>3</sup>

\*1PG Scholar, <sup>2</sup>Lecturer Gr II, <sup>3</sup>Head of the Department, Department of Kuzhanthai Maruthuvam, Government Siddha Medical College and Hospital, Palayamkottai, Tirunelveli, Tamil Nadu, India.

Article info

Article History:

Received: 05-03-2026

Accepted: 09-04-2026

Published: 12-05-2026

KEYWORDS:

Siddha Medicine,  
Phytochemical  
Screening,  
Bioactive  
Metabolites,  
*Chundai Vattral  
Dhiravagam, Pitha  
Kirani.*

ABSTRACT

In the Siddha system of medicine, *Dhiravagam* represents a unique class of internal medicine prepared via distillation using the *Vaalai Enthiram* apparatus. *Chundai Vattral Dhiravagam* (CVD), a formulation derived from the classical text *Yagopu Vaithiya Chindhamani 700*, is traditionally indicated for managing *Pitha Kirani* (Acute Gastroenteritis) in the pediatric age group. Establishing a clear phytochemical profile is essential to understanding the therapeutic potential of this distilled formulation. **Methods:** The study focused on the systematic phytochemical screening of CVD to identify its primary bioactive metabolites. The formulation was subjected to a series of qualitative chemical tests to detect the presence of secondary metabolites that contribute to its medicinal properties. **Results:** Phytochemical analysis confirmed the presence of diverse bioactive metabolites within the distilled formulation. The screening revealed the presence of: alkaloids and flavonoids, steroids and triterpenoids, phenols and tannins. **Conclusion:** The identification of these varied phytoconstituents provides a scientific rationale for the traditional use of *Chundai Vattral Dhiravagam* in treating pediatric gastrointestinal conditions. These results suggest that the distillation process successfully captures essential bioactive compounds, supporting the formulation's identity and therapeutic application in Siddha pediatrics.

INTRODUCTION

The Siddha system of medicine is increasingly recognized for its therapeutic potential, yet a significant gap remains in bridging traditional knowledge with modern pharmaceutical standards. A primary challenge in the global integration of Siddha formulations is the need for documented, evidence-based data regarding their chemical composition. This study seeks to address these gaps by establishing the phytochemical benchmarks for *Chundai Vattral Dhiravagam* (CVD), a formulation described in the classical text *Yagopu Vaithiya Chindhamani 700*.

*Dhiravagam* (distilled medicaments) represents one of the 32 categories of internal medicines<sup>[1]</sup> in the Siddha system.

The distillation process, performed using the specialized *Vaalai Enthiram*<sup>[2]</sup>, is specifically designed to extract volatile principles and essential bioactive compounds from plant-based materials. These distillates offer unique advantages over crude herbal powders; the process is intended to concentrate potent secondary metabolites while ensuring a formulation that is often faster-acting and easier to administer.

The clinical application of *Chundai Vattral Dhiravagam* is particularly significant in the management of *Pitha Kirani* (acute gastroenteritis) within the pediatric age group. For children- a physiologically vulnerable population- the liquid form of *Dhiravagam* ensures ease of administration and rapid bioavailability. However, the efficacy of such a distilled medicine is inherently tied to its phytochemical makeup.

Despite its long-standing traditional use, there is a distinct research gap regarding the standardized "chemical fingerprint" of CVD. Understanding the specific presence of alkaloids, flavonoids, phenols, and other metabolites is crucial for validating its

Access this article online	
Quick Response Code	
	<a href="https://doi.org/10.47070/ijapr.v14i5.4141">https://doi.org/10.47070/ijapr.v14i5.4141</a>
Published by Mahadev Publications (Regd.) publication licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)	

therapeutic action. Therefore, the present study focuses on a systematic phytochemical screening to identify the diverse phytoconstituents within CVD,

providing a robust scientific foundation for its application in pediatric clinical practice.

## MATERIALS AND METHODS

**Table 1: Ingredients of Chundai Vatral Dhiravagam**

S.No	Name	Botanical Name	Family Name	Part Used	Quantity
1	Chundaivatral	<i>Solanum torvum</i>	<i>Solanaceae</i>	Fruit	150 gm
2	Karuveppilai	<i>Murraya koenigii</i>	<i>Rutaceae</i>	Leaf	150 gm
3	Maamparuppu	<i>Mangifera indica</i>	<i>Anacardiaceae</i>	Seed kernel	150 gm
4	Omam	<i>Trachyspermum ammi</i>	<i>Apiaceae</i>	Fruit	150 gm
5	Nellivatral	<i>Phyllanthus emblica</i>	<i>Euphorbiaceae</i>	Fruit	150 gm
6	Chukku	<i>Zingiber officinale</i>	<i>Zingiberaceae</i>	Rhizome	150 gm
7	Vendhayam	<i>Trigonella foenum</i>	<i>Fabaceae</i>	Seed	150 gm
8	Erumai Paal	<i>Bubalus bubalis</i>	-	Milk & curd	1050 MI

### Collection, Identification, and Authentication of the Drug

The eight raw herbal ingredients required for the formulation of *Chundai Vatral Dhiravagam* were procured from a reputable supplier in Nagercoil, Tamil Nadu. The identity and quality of these medicinal plants were formally verified and authenticated by the Head of the Department, Department of Gunapadam, Government Siddha Medical College, Palayamkottai.

In accordance with traditional Siddha pharmacological guidelines, each raw drug was subjected to specific purification (*Suddhi*) protocols to ensure the removal of impurities and the enhancement of therapeutic efficacy. Following purification, the trial drug was manufactured in the Gunapadam Laboratory at the Government Siddha Medical College, Palayamkottai, adhering to the classical distillation parameters specified for *Dhiravagam* preparations.

### Preparation of the Trial Drug

#### Purification Process (*Suddhi*)

The raw ingredients were subjected to traditional Siddha purification processes to ensure the removal of impurities and the enhancement of therapeutic efficacy.

- *Chundaivatral* (*Solanum torvum*), *Karuveppilai* (*Murraya koenigii*), and *Maamparuppu* (*Mangifera indica*) were cleaned and shade-dried.
- *Omam* (*Trachyspermum ammi*) was soaked in lime water for about 3 hours and dried thoroughly under a fan to remove all moisture<sup>[4]</sup>.
- For *Nellivatral* (*Phyllanthus emblica*), the fruits were boiled in cow's milk. The seeds were removed, and the pulp was sun-dried before use<sup>[2]</sup>.
- For *Chukku* (*Zingiber officinale*), the outer skin was removed. Limestone is mixed with water and made

as a paste. This paste is applied over *Chukku* as a thin layer and dried in sunlight and used<sup>[4]</sup>.

- *Vendhayam* (*Trigonella foenum-graecum*) was soaked in fermented rice water for 12 minutes and dried thoroughly under a fan to prevent fungal growth and moisture-induced contamination<sup>[2]</sup>.

### Preparation and Distillation (*Dhiravagam* Preparation)

The seven purified ingredients were individually finely powdered and mixed thoroughly. This composite powder was triturated with buffalo milk, added incrementally, until a dough-like consistency was achieved. This dough was then incorporated into buffalo curd, using a volume equivalent to eight times the total weight of the raw drugs. The mixture was placed in a sterile container, sealed with a cloth to prevent environmental contamination, and kept in a dark room for a three-day fermentation period.

On the third day, the mixture was stirred, and a volume of water equal to the volume of the curd was added. The mixture was transferred to the Traditional Distillation Apparatus (*Valai Enthiram*), hermetically sealed, and subjected to a slow, controlled flame. The distillate began to appear after 45 minutes. Following Siddha pharmacological literature, only the first 50% of the distillate (relative to the water added) was collected to ensure maximum therapeutic potency. The total process duration was 4.45 hours, with ice added to the condenser at regular intervals to maintain cooling and maximize yield.

The use of buffalo curd as a fermenting medium likely aid in the breakdown of complex phytochemicals into simpler, more bioavailable forms, which were subsequently captured in the distillate.



Fig 1 : All Raw drugs are grinded with Buffalo Milk



Fig 2: Dough Like Consistency



Fig 3: Buffalo Curd

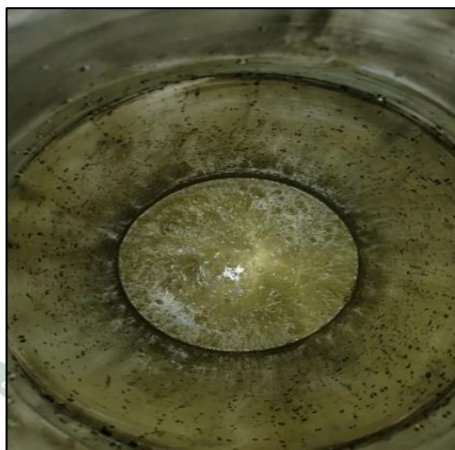


Fig 4: After 3 days kept in Distillation apparatus

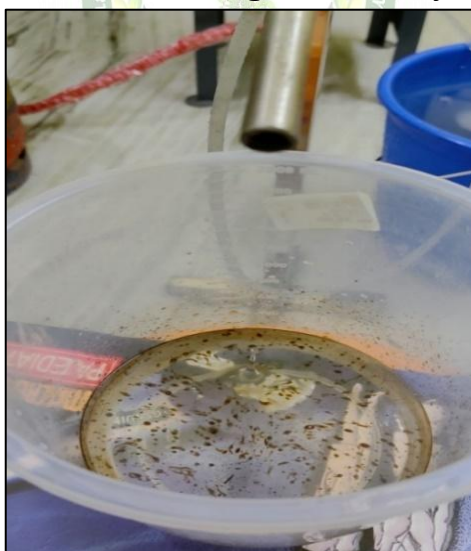


Fig 5: Chundai Vatral Dhiravagam after 45<sup>th</sup> minute

#### Administration of the Drug

- Age Group: 5-12 years
- Dose: 3 – 5 ml (dose calculated as per Clarks Rule) - Before food.
- Duration: Twice a day

#### Qualitative Phytochemical Analysis

The phytochemical screening of *Chundai Vatral Dhiravagam (CVD)* was executed following the PLIM-Protocol for ASU formulations to identify various secondary metabolites.

#### Detection of Alkaloids (Mayer's Test)

A 2ml portion of Mayer's reagent was introduced to the CVD sample. The emergence of a dull white precipitate confirmed the presence of alkaloid compounds.

#### Detection of Coumarins

The test sample was treated with 1ml of 10% sodium hydroxide. The development of a distinct yellow hue served as an indicator for coumarins.

**Detection of Saponins**

To assess saponin content, 5ml of distilled water was mixed with the CVD sample and agitated vigorously. The appearance of persistent, copious lather signified a positive result.

**Detection of Tannins**

Ferric chloride was added to the CVD extract. The reaction produced a dark blue or greenish-black coloration, verifying the presence of tannins.

**Detection of Glycosides (Modified Borntrager’s Test)**

The CVD sample underwent hydrolysis using concentrated hydrochloric acid for two hours in a water bath. Following filtration, 3ml of chloroform was agitated with 2ml of the resulting hydrolysate. The chloroform layer was isolated and treated with a 10% ammonia solution. A pink coloration indicated the presence of glycosides.

**Detection of Flavonoids (Alkaline Reagent Test)**

Two milliliters of the extract were treated with a few drops of sodium hydroxide, which initially produced a deep yellow color. This color faded upon the addition of dilute HCl, confirming the presence of flavonoids.

**Detection of Phenols (Lead Acetate Test)**

A 3ml volume of 10% lead acetate solution was combined with the CVD sample. The formation of a heavy white precipitate evidenced the presence of phenolic constituents.

**Detection of Steroids**

The test sample was mixed with 2ml of chloroform and 3ml of concentrated sulphuric acid, followed by thorough shaking. The transition of the upper layer to red, accompanied by yellow-green fluorescence in the acid layer, indicated steroids.

**Detection of Triterpenoids (Liebermann-Burchard Test)**

Acetic anhydride was added to a chloroform solution of the extract and mixed. Concentrated sulphuric acid was then carefully introduced along the side of the tube. The formation of a red ring at the junction confirmed triterpenoids.

**Detection of Cyanins (Anthocyanins)**

The CVD sample was treated with 1ml of 2N sodium hydroxide and subjected to heat at 100°C for five minutes. The development of a bluish-green tint indicated the presence of anthocyanins.

**Detection of Carbohydrates (Benedict’s Test)**

Approximately 0.5ml of Benedict’s reagent was added to the CVD sample and heated in a boiling water bath for two minutes. The formation of a characteristic-colored precipitate revealed the presence of reducing sugars.

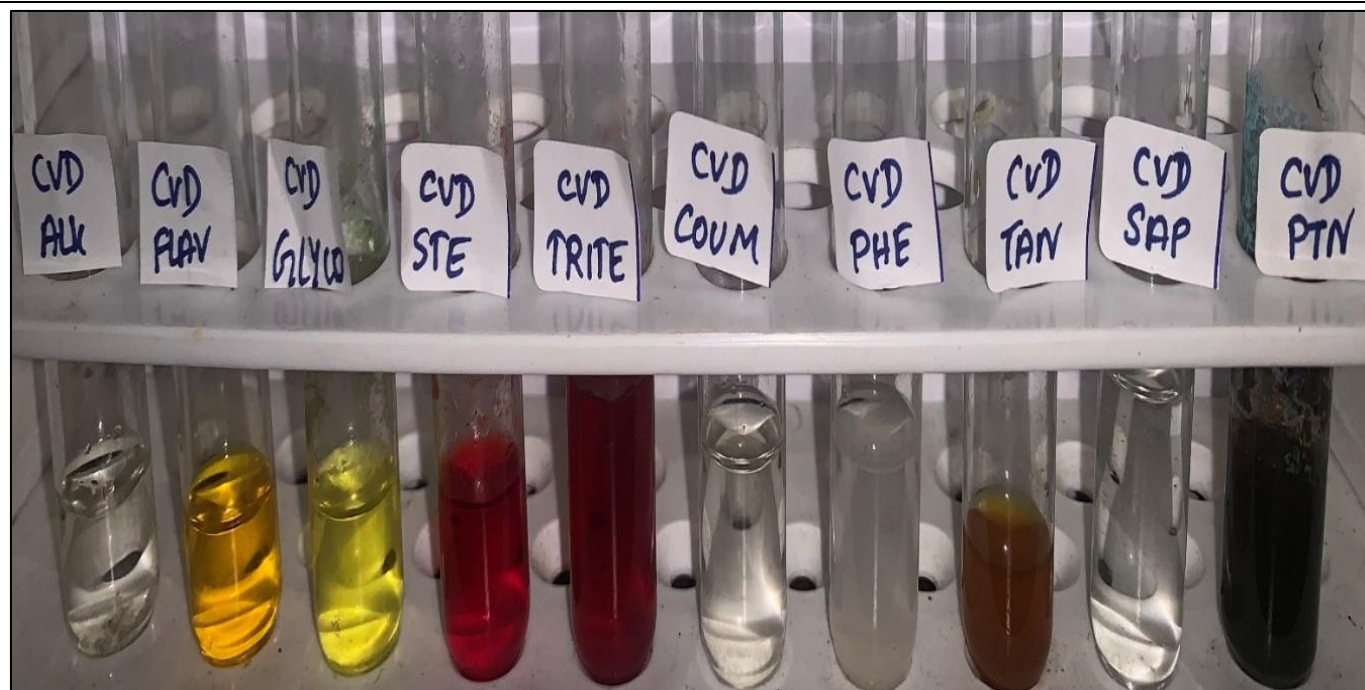
**Detection of Proteins (Biuret Test)**

The extract was treated with a 1% copper sulphate solution, followed by a 5% sodium hydroxide solution. The appearance of a violet-purple color confirmed the presence of proteins.

**RESULTS**

**Table 2: Qualitative Phytochemical Analysis**

S.No	Test	Observation
1	Alkaloids	+
2	Flavonoids	+
3	Glycosides	-
4	Steroids	+
5	Triterpenoids	+
6	Coumarin	-
7	Phenol	+
8	Tannin	+
9	Saponins	-
10	Protein	-
11	Sugar	-
12	Anthocyanin	-



**Fig 6: Phytochemical Analysis**

## DISCUSSION

The standardization of Siddha formulations is essential to ensure therapeutic efficacy and consistent quality. In the present study, the phytochemical profile of *Chundai Vattral Dhiravagam* (CVD) was established to understand the chemical basis for its traditional use in pediatric care.

The qualitative analysis revealed a rich diversity of secondary metabolites. The identification of phenols (via lead acetate test) and flavonoids<sup>[5]</sup> (via alkaline reagent test) is particularly significant. These compounds are well-documented for their potent antioxidant and anti-inflammatory properties. In the context of *Pitha Kirani* (acute gastroenteritis), these metabolites may help reduce mucosal inflammation and oxidative stress in the gastrointestinal tract.

Furthermore, the presence of tannins<sup>[6]</sup>, indicated by the reaction with ferric chloride, suggests an astringent action. This property is traditionally valued in Siddha medicine for controlling diarrhea by precipitating proteins on the intestinal mucosa, thereby protecting the intestinal lining. The detection of alkaloids through Mayer's reagent further supports the pharmacological potential of CVD, as alkaloids often exhibit significant antimicrobial and antispasmodic activities<sup>[7]</sup>.

The study also confirmed the presence of steroids and triterpenoids through the Liebermann-Burchard and sulphuric acid tests. These constituents often contribute to the immunomodulatory and wound-healing characteristics of traditional medicines. The presence of these diverse phytoconstituents—including saponins, glycosides, and anthocyanins—validates that the traditional "*Dhiravagam*" (distillation) process is not merely a method of

purification. Rather, it is a sophisticated extraction technique that effectively retains the vital therapeutic markers of the raw ingredients. By identifying these specific groups of metabolites, this study provides a preliminary chemical map that correlates the traditional "*Veeryam*" (potency) of the medicine with modern phytochemical data.

## CONCLUSION

The analytical study concludes that *Chundai Vattral Dhiravagam* (CVD) is a phytochemically rich formulation containing essential secondary metabolites such as alkaloids, flavonoids, and phenols. The presence of these bioactive compounds provides a scientific rationale for its traditional application in treating pediatric gastrointestinal disorders. This phytochemical profile serves as a foundational benchmark for the characterization and identity of this distilled Siddha medicine, supporting its integration into evidence-based clinical practice.

## Acknowledgement

We sincerely thank Noble Research Solutions for their support and contribution to this research work.

## REFERENCES

1. Thiyagarajan R. Gunapadam Thaadhu-Jeevam (2<sup>nd</sup> & 3<sup>rd</sup>). 2<sup>nd</sup> ed. Chennai: Indian Medicine and Homeopathy; 1968. p. 56.
2. Kannusamy Pillai C. Sigicha Rathina Deepam. 1<sup>st</sup> ed. Chennai: Rathna Nayakar & Sons; 1931. pp. 29-30, 77.
3. Kuppusamy Naidu T. Yagopu Vaithiya Chinthamani 700. 5<sup>th</sup> ed. Madurai: E.R. Gurusamy Co & Sons; 1951. p. 24. Song no. 81.

4. Kuppusamy Naidu T. Yagopu Vaithiyam 300. Madurai: E.R. Gurusamy Co & Sons; 1955. pp. 22-23. Song nos. 55, 57.
5. Al-Khayri JM, Sahana GR, Nagella P, Joseph BV, Alessa FM, Al-Mssallem MQ. Flavonoids as Potential Anti-Inflammatory Molecules: A Review. *Molecules*. 2022 May 2; 27(9): 2901. doi: 10.3390/molecules27092901.
6. Bhattacharya S, Chakraborty S, Pal R, Roy A, Bhattacharjee A. Tannins Containing Medicinal Plants and Its Significance: An Overview. *J Emerg Technol Innov Res*. 2022 Nov; 9(11): a340-a350.
7. Rauf A, Akram M, Semwal P, Mujawah AAH, Muhammad N, Riaz Z, et al. Antispasmodic Potential of Medicinal Plants: A Comprehensive Review. *Oxid Med Cell Longev*. 2021 Nov 11; 2021: 4889719. doi: 10.1155/2021/4889719.

**Cite this article as:**

Somesh Balaji. S, J. Sriram, K. Shyamala, T. Maharasi Maniselvi. Phytochemical Standardization of Chundai Vattral Dhiravagam: A Traditional Siddha Distilled Formulation. *International Journal of Ayurveda and Pharma Research*. 2026;14(5):11-16.

<https://doi.org/10.47070/ijapr.v14i5.4141>

**Source of support: Nil, Conflict of interest: None Declared**

**\*Address for correspondence**

**Dr. Somesh Balaji. S**

PG Scholar,  
Department of Kuzhanthai  
Maruthuvam, Government Siddha  
Medical College and Hospital,  
Palayamkottai, Tirunelveli.  
Email: [someshbalaji99@gmail.com](mailto:someshbalaji99@gmail.com)

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.

