

**COMPARATIVE STUDY ON EFFICACY OF *IN-VITRO*  
CARMINATIVE ACTIVITY OF SIDDHA MEDICINE *OMA THEENEER*  
ALONG WITH MARKETED GRIPE WATER**

**Elakkiyaa V.<sup>1\*</sup>, Arulmozhi T.<sup>1</sup>, Visweswaran S.<sup>2</sup>, Sivakkumar S.<sup>2</sup>, Mariappan A.<sup>2</sup> and  
Banumathi V.<sup>3</sup>**

<sup>1</sup>PG Scholar, <sup>2</sup>HOD <sub>ic</sub>, <sup>2</sup>Lecturer, Department of *Gunapadam*, <sup>3</sup>The Director, *National Institute of Siddha*, Tambaram Sanatorium, Chennai-47.

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**\*Corresponding Author**

**Dr. Elakkiyaa V.**

PG Scholar, *National*

*Institute of Siddha*,

Tambaram Sanatorium,

Chennai-47.

**ABSTRACT**

Changes in our lifestyle habits such as food intake, lack of physical activities leads to unhealthy threat full complications in humans. Nowadays the herbs are the only hope for the wellness of health. In Siddha system of medicine, *Oma theeneer* is mentioned in Siddha classical literature which is being used for abdominal discomforts like belching, indigestion, abdominal distension and diarrhoea. Many marketed Gripe water also used by the Public especially to the infants for the same effect. The present study was aimed to compare the carminative effect of *Oma theeneer* with gripe water. *Oma theeneer* was prepared as per the standard operating procedure and gripe water

was purchased from market and both the samples were subjected for the evaluation of carminative property by using carbon dioxide evolution method. The results of this study suggest that *Oma theeneer* (OT) has marked carminative effect as that of marketed Gripe water (GW). This research work will help to contribute the better use of Siddha formulation *Oma theeneer* for gastric ailments among infants.

**KEYWORDS:** Carminative, Siddha medicine, *Oma theeneer*, Gripe water.

**INTRODUCTION**

Human digestive system is a complex and extensive part of the body. It involves group of organs working together to convert food into energy and basic nutrients to feed the entire body. Heartburn, dyspepsia, bloating and constipation are the common symptoms of gastro

intestinal diseases like GERD (Gastroesophageal reflux disease), Gastritis, Gastric Ulcers, Duodenal Ulcers, Crohn's Disease, Ulcerative Colitis, Diverticulitis, Hemorrhoids, etc.

Carminatives are herbs or herbal preparation used to expel gas from stomach or intestine so as to relieve abdominal distension or pain or flatulence. Generally carminative herbs contain volatile compounds which have therapeutic effects in supporting digestion. It also stimulates bile flow, regulate intestinal contraction and reduces the surface tension within the intestines.

Distillation is a specialized, lengthy and slow procedure in siddha system of traditional medicine and this need to be considered to extract the entire profile of the volatile and organic molecules present in the herbal part.<sup>[1]</sup> Any herbs can be distilled as per the standard operative procedure but the quality and amount of bioactive principles varies with nature of the raw drug used in it and the method of distillation.<sup>[2]</sup>

*Theeneer* is one of the special medicine in Siddha in which the liquid extracts of raw drugs is prepared by the means of Distillation by using traditional apparatus called Valai iyanthram. It is the Distilled essence, which contains the volatile constituents or water soluble constituents of the drugs used in the preparation in a water medium.

*Oma theeneer* is a Siddha herbal distillate preparation mentioned in the classical text “Siddha Vaidya Thirattu” which acts as a good carminative and appetizer. *Trachyspermum ammi*, the main ingredient in *Oma theeneer* belongs to the family *apiaceae*. The seeds are bitter, pungent and contain 2–4.4% brown colored ajwain oil. The main component of this oil is thymol, which is used in the treatment of gastro-intestinal ailments, lack of appetite and respiratory problems. It also exhibits fungicidal, antimicrobial, anthelmintic, carminative, laxative, and stomachic effects.<sup>[3]</sup> It is a simple and effective Siddha formulation which is widely used by larger population in South India for gastro intestinal ailments.

## MATERIALS AND METHODS

### *Oma theeneer*

#### Ingredients

Omam /Ajwain / ajowan ( <i>Trachyspermum ammi</i> )	300gram
Water	10 litres

**Method of preparation<sup>[4]</sup>**

The raw drug *omam* was collected from a reputed country drug shop. It was Crushed into coarse powder and soaked in pure water for a period of 2 days. On the 3<sup>rd</sup> day the whole mixture was charged into the still (Valaiyanthram). The lid was tightly set in and sealed around and allowed to dry completely. Provisions are made in the upper still for water inlet and outlet to maintain regular water current and a distil outlet for collecting the condensed distillates. The distillation process was started with slow heating till the appearance of 1st vapour form the distillate outlet with a peculiar odour. The volatile substances which was evolved admixture with water vapour from the still are condensed and taken. The collected distilled *Oma Theeneer* was preserved in an air tight glass container for analysis. *Oma Theeneer* is a super clear distillate with pleasant odour.

**In-vitro Carminative activity acid-base titration technique (Carbon Dioxide Evolution Method)**

In-vitro carminative activity of the *Oma Theeneer* (OT) and marketed gripe water (GW) was evaluated by modified method of Swapnil Sharma *et al.*<sup>[5]</sup> About 10,20 and 40 ml of OT and GW were placed in conical flask fitted with air-tight nozzle, to this 100 ml of distil water was added. About 100 ml of NaOH {1M, previously standardized to oxalic acid} was poured into a plastic container fitted with aeration tubing system that was connected directly to the reaction vessel containing varying volume of OT and GW. The flask was agitated manually

for the next 45 minutes and vigorously for another 30 minutes and was allowed to stand for overnight. The carbon dioxide gas evolved from the reaction vessel was allowed to pass into a plastic container containing excess sodium hydroxide where it was absorbed and converted into equivalent amount of sodium carbonate. The resulting mixture consisting of excess sodium hydroxide and sodium carbonate was titrated with standard HCl using phenolphthalein as indicator to get first endpoint and in continuation to this the second endpoint was enumerated using methyl orange as indicator. The difference in millilitres between the first and second endpoints was used to calculate the carbon dioxide content per gram of sample.

Vol. of titrant x Molarity of std. acid x Mol. Wt. of CO<sub>2</sub> = mass of CO<sub>2</sub> in gm

(Molarity of the Acid is 0.09184 M and Mol. Wt. of CO<sub>2</sub> is 44.01 g/mol)



**Fig 1**



**Fig 2**



**Fig 3**



**Fig 4**

**Fig 1-** Reaction Setup of OT, **Fig 2-** Evolvement of Carbon dioxide from the reaction mixture, **Fig 3-** Reaction Setup of GW, **Fig 4-** Evolvement of Carbon dioxide from the reaction mixture.

## RESULT AND ANALYSIS

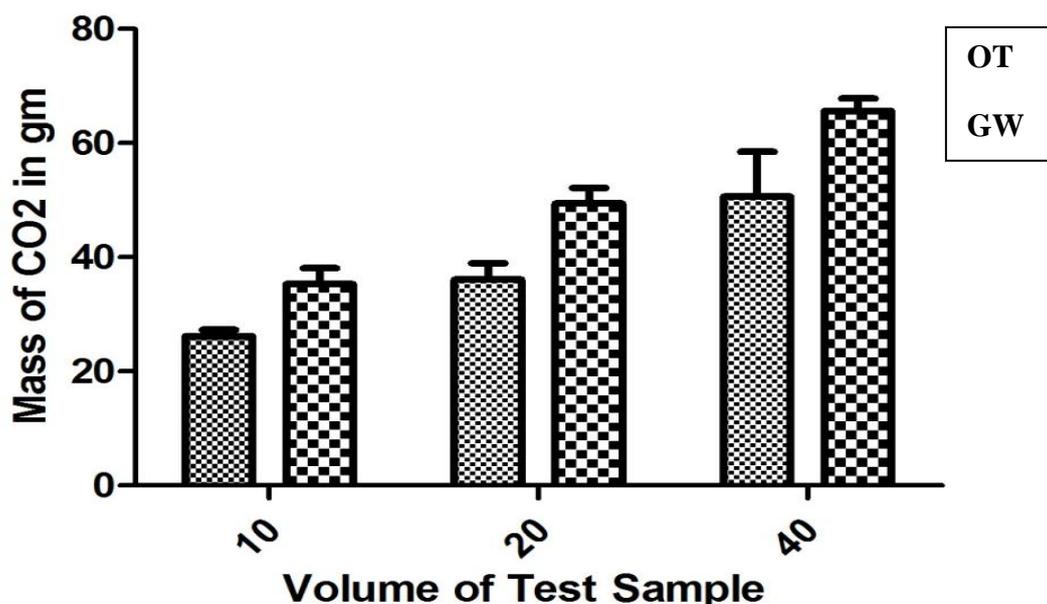
- The carminative profiling of OT was evaluated on basis of the amount of carbon-dioxide evolved from the reaction mixture with varying volume of sample 1. The amount of carbon dioxide {g} produced by the 10 ml of the sample 1 was found to be  $(26.14 \pm 1.16)$ , for 20 ml of sample it was  $(36.11 \pm 2.83)$  and for 40 ml of sample it was  $(50.66 \pm 7.85)$ .
- The carminative profiling of marketed gripe water (sample 2) was evaluated on basis of the amount of carbon-dioxide evolved from the reaction mixture with varying volume of sample 2. The amount of carbon dioxide {g} produced by the 10 ml of the sample 2 was found to be  $(35.3 \pm 2.83)$ , for 20 ml of sample it was  $(49.45 \pm 2.69)$  and for 40 ml of sample it was  $(65.61 \pm 2.29)$ .

### Statistical Representation

Volume of Test Sample	Mass of CO <sub>2</sub> in gm (OT)	Mass of CO <sub>2</sub> in gm (GW)
10	$26.14 \pm 1.16^*$	$35.3 \pm 2.83^*$
20	$36.11 \pm 2.83^{**}$	$49.45 \pm 2.69^{**}$
40	$50.66 \pm 7.85^{**}$	$65.61 \pm 2.29^{**}$

- Values are expressed as mean  $\pm$  S.E.M. (n=6), Comparisons were made between: Group I (OT) vs. Group II (GW). Symbols represent statistical significance: \* $p < 0.05$ , \*\* $p < 0.01$ , ANOVA followed by Paired T test.

### Effect of OT and GW on mass release of CO<sub>2</sub>



## DISCUSSION

Nowadays gastro intestinal problems like gastroesophageal reflux, acute diarrhoea, constipation are common in infants.<sup>[6]</sup> There are so much of marketed gripe water available, which has been used by the public for so many years. Bronopol, Sodium Methylparaben, Sodium Propylparaben, Sodium Benzoate, Sodium carbonate are commonly used in gripe water as ingredients and preservatives. *In vivo* chronic toxicity study of bronopol showed gastro intestinal lesions to rodents and dogs on oral administration.<sup>[7]</sup> GCMS analysis of *Oma Theeneer* showed the presence of Thymol, Phenol, 2- methyl- 5- (1-methylethyl) and Cyclopropanebutanoic acid, derivatives of Linoleic acid such as n-Hexadecanoic acid, 10-Octadecenoic acid, 9, 12-Octadecadienoic acid and 7, 10-Octadecadienoic acid.<sup>[8]</sup> The phenolic compounds and organic acids derived from *Oma Theeneer* plays an important role in exhibiting carminative activity.

## CONCLUSION

Aromatic herbal plants like *Omam* are best source for preparing a quality distillate as it highly reflects the traditional parameters of ideal color, taste and aroma. In the present investigation, the carminative activity of distillate formulation *Oma theeneer* was established and documented for the need of future researcher and also compared its carminative activity with marketed gripe water. The outcome of this study indicates that *Oma theeneer* which has no added preservatives and also possesses good carminative activity significantly can be used for infants for common gastro intestinal problems. However, further clinical studies on *Oma theeneer* are suggested to establish the better use of drug among the public in the future.

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