

SCIENTIFIC VALIDATION OF TWO IDENTICAL HERBAL PREPARATIONS FOR VIKKAL NOI (HICCUPS)

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ABSTRACT

Siddha System of Medicine was originated from South India, for several centuries as the folk and traditional healing practices of rural Tamilnadu. Over the last several decades, the place for modern Allopathic System of Medicine in many segments of the Health Care System is on worldwide raise, because of its role in managing emergencies. And now, the situation is changed and the whole world is leaping towards the use of Traditional Systems of Medicine, after knowing the benefits of the treatments based on natural origins which include plants, metals, minerals and animals. Hiccups (Diaphragmatic Flutter) is one among the passively increasing diseases, which can be even fatal in patients who experience certain conditions such as the rapid increase in its frequency and severity. *Siddha* System names the Hiccups as *VIKKAL NOI*, *VIKKUL NOI* and *EGHAMAA NOI*. Many of the treatment aspects available in the Literary form, for the management of *Vikkal noi* are not in usage. Our work presents a scientific validation of two identical *Siddha* preparations - a *Sastric* preparation and a New Relevant Codified Formulation named : “Hicess Plus”.

KEY WORDS

Vikkal noi, *Siddha* medicine, Hicess Plus, Diaphragmatic flutter, Hiccups.

INTRODUCTION

The lingual interpretation of the terms “ *Vikkal noi* ”, “ *Vikkul noi* ”, and “ *Eghamaa noi* ” includes the sounds – “ *Vikk* ” (*Hicc*), “ *Vikk* ” (*Hicc*) and “ *Egh* ”(*Hicc*) respectively. Based on the *Tri - dhosha* theory and other criteria, the *Vikkal noi* has been classified into the following five types.

1. *Vali vikkal noi*,
2. *Azhal vikkal noi*,
3. *Iya vikkal noi*,
4. *Mukuttra vikkal noi*, and
5. *Seriya vikkal noi* (due to indigestion)

Not only *Vikkal noi* can be an associative symptom of certain diseases, but also can be an independent disease. When the *Vikkal noi* exists as an independent disease, the initial symptoms include dryness of throat and tongue, stomach disturbances, bitterness of mouth, thirst and redness of eye.

CAUSES OF VIKKAL NOI ACCORDING TO SIDDHA LITERATURES

- Increased intake of foods which tastes hot, sweet and bitter.
- Increased consumption of carbohydrate (*maavupandam*) foods. These become sour within the gut and cause accumulation of the gas (Can be compared with flatulence).
- Intake of foods which increase the *Vaayu bootham*.
- Withholding breathe for a comparatively longer time.
- Elevation of the *Iya bootham* in the gut, which stimulates the *Udhana Vaayu* (one among the ten Vital airs).
- People, who experience prolonged bed-ridden period, *Mukuttra noi*, excessive thirst and hunger and Diabetes, experience *Vikkal noi* as an associative symptom in their respective disease.

MECHANISM OF THE CAUSE OF VIKKAL NOI IN SIDDHA ASPECT

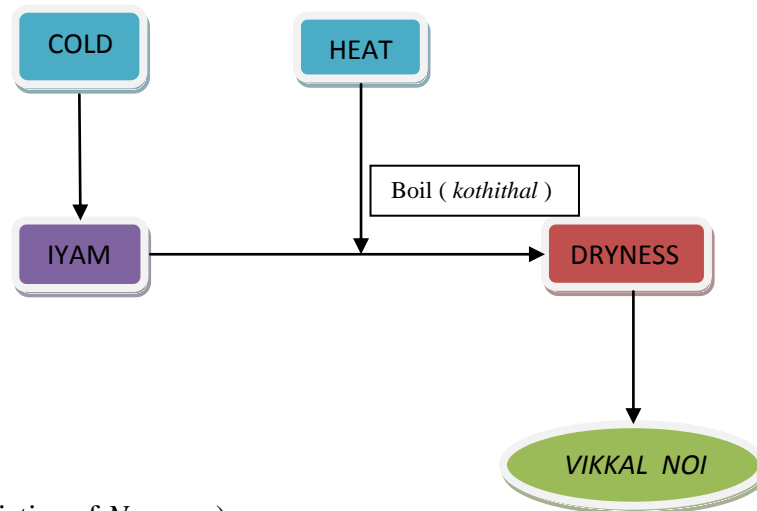
Though *Vaadham* is a single entity, based upon its actions and locations in the human body, they were classified into the following ten types of vital airs:


1. *Praanan* (*Uyir kaatru*),

2. *Abaanan (Mala kaatru)*,
3. *Viyaanan (Thozhil kaatru)*,
4. *Udhaanan (Oli(sound) kaatru)*,
5. *Samaanan (Niravu kaatru)*,
6. *Naagan (Thummal kaatru)*,
7. *Koorman (Vizhi kaatru)*,
8. *Kirugaran (Kottaavi kaatru)*,
9. *Dhevadhathan (Imai kaatru)* and
10. *Thananjeyan (Veengha kaatru)*

Among these 10 vital airs, *Naagan (Thummal kaatru)* is stimulated initially. The stimulated *Naagan* induces the *Vikkal noi* as per the following illustration.

Flow chart 1.1 – Cause of *Vikkal noi*



( : Characteristics of *Naagan*)

Both the Cold and Heat are the characteristics of the *Naagan*. The stimulated *Naagan*, increases the *Iyam* (due to its cold character) first. Followed by this, the Heat character of the *Naagan* acts upon the *Iyam* produced. Due to the heat nature, the produced *Iyam* boils (*kothithal*) to retain dryness, which is most identical character of the heat. As a result of this, *Vikkal noi* is produced.

NAAGAN, STELLATE GANGLION AND VAGUS NERVE IN RELATION

Stellate ganglion which is formed by the 7th and 8th cervical ganglia, is located in C7 level. It is anterior to the transverse process of C7 vertebra and the neck of the first rib, superior to the cervical plexus and just below the Subclavian artery.

An research article “Treatment of Intractable Hiccups with Epidural Block and Stellate Ganglion Block (SGB)” from Journal of Japan society of Pain Clinicians reports as “Epidural block or SGB inhibits the pathway of the hiccup reflex arc, including the phrenic nerve and the thoracic sympathetic chain. Our results indicate that an epidural block or SGB is a useful method for treating intractable hiccups”

Another research article “Ig Nobel prizes hail ‘digital rectal massage’”, reports as “Gagging, tongue pulling, sinus massage and pressing the eyeball to stimulate the Vagus all failed to stop the hiccups. Then, he remembered reading about a case in which digital rectal massage – inserting a finger into a patient’s anus – had slowed a racing heartbeat, an effect similar to runaway hiccups”.

Article, “Continuous Low-Level Vagus Nerve Stimulation Reduces Stellate Ganglion Nerve Activity and Paroxysmal Atrial Tachyarrhythmias in Ambulatory Canines” results “Left-sided low-level vagus nerve stimulation suppresses stellate ganglion nerve activities and reduces the incidences of paroxysmal atrial tachyarrhythmias in ambulatory dogs. Significant neural remodeling of the left stellate ganglion is evident 1 week after cessation of continuous LL-VNS”.

From these statements from the above Journals, it is finalized that :

1. Stellate Ganglion Block (SGB) reduces the Hiccups (DF).
2. Vagal Nerve Stimulation (VNS) reduces the activity of the Stellate ganglion.

From the above mentioned, it is hypothesized that “ *Naagan* – one of the Vital air is located in the Stellate Ganglion and functionalizes it ”.

MATERIALS AND METHODS

Trial drugs consists of Samples A – *Sastric* preparation and Sample B – New Relevant Codified Formulation (Hiccss Plus)

Sample A :

Ingredients of the sample A include :

- 1 .Paal Sambrani (*Styrax benzoin*)
2. Nalla Vellam (*Saccharum officinarum*)

Preparation

Proportional quantity of both the ingredients was ground using the *Kalvam* and *Arai karuvi*. Then, the powdered substance obtained had undergone *Vasthiragaayam* procedure.

Both the samples were subjected to the Basic Analytical test for *Chooranam*, *Podi*, Thin Layer Chromatography (TLC), pH test and Total Dissolved Solids (TDS).

Sample B

Sample B is a New Relevant Codified Formulation named “ Hiccss Plus ”and hence the details of the ingredients and the preparation are not disclosed.

Fig 1.1 Images of the ingredients and the samples



RESULTS AND DISCUSSION

1. Basic analytical test for Chooranam, Podi in the laboratory as per the Protocol.

Table 1.1- Basic Analytical test for *Chooranam, Podi report*

S.NO	TESTS	SAMPLE A	SAMPLE B
1. Organoleptic characters			
i)	Appearance	Powder	Powder
ii)	Touch	Nice	Nice
ii)	Smell	Pleasant odour	Pleasant odour
iii)	Taste	Sweet	Sweet
iv)	Colour in day light	Sandal	Sandal
v)	Colour under UV Ray	Green	Brown
vi)	With 50% HCl under UV	Bluish brown	Black
vii)	With 10% NaOH under UV	Sandy brown	Sandy brown
2. Physico-chemical Standards			
i)	Loss on drying	4.4%	0%
ii)	Ash content	2.5%	2.1%
iii)	Acid soluble ash	0.4%	0.4%
iv)	Water Sol. Matter	53.8%	73.5%
v)	Alcohol Sol. Matter	95.7%	88.6%
vi)	Active Principle /T.L.C	(Results are given below)	
vii)	Nice	Fine powder	Fine powder
3. Microbiological analysis			
i)	Total viable Aerobic count	0.14×10^5 col/g	0.17×10^5 col/g
ii)	Total Enterobacteriaceae	Nil	Nil
iii)	Total Fungal count	0.2×10^2 col/g	0.46×10^2 col/g
iv)	Yeast and Mould	Nil	Nil
v)	Salmonella Sp.		
vi)	Staphylococcus aureus		
vii)	E. coli		
viii)	Pseudomonas aeruginosa		

2. Thin Layer Chromatography

Thin layer chromatography (TLC) is a chromatographic technique used to separate the components of a mixture using a thin stationary phase supported by an inert backing. Retardation factor (*R_f*) is the fraction of an analyte in the mobile phase of a chromatographic system. *R_f* value represents particular phytochemical with respect to the solvent medium used in the TLC procedure.

Table 1.2 *R_f* value reports of Thin Layer Chromatography

Sample A	Sample B
0.79, 0.71	0.86, 0.79
0.64, 0.56	0.71, 0.64
0.36, 0.29	0.57, 0.41
	0.33, 0.26

3. pH test :

Under the room temperature, pH values of the samples were recorded using the pH meter.

Table 1.3 pH readings of the samples

Sample A	Sample B
5.2	4.8

4. Total Dissolved Solids

Under the room temperature, 1g of each samples were dissolved in 10ml of distilled water and the values were recorded using the TDS meter.

Table 1.4 TDS values of the samples

Sample A (x 10 ⁻¹ g/ml)	Sample B (x 10 ⁻¹ g/ml)
349	406

- Organo-leptic characters of both the powdered form of medicines, were nice in touch, representing the large surface area and easy absorption.
- Pleasant odour and sweetness of both the samples ensures palatability.
- In Physico-chemical values, the loss on drying is 0% for sample B and hence the sample ensures the no quantitative or qualitative loss even after the storage for a longer period.
- Ash content is relatively low for Sample B (2.1% < 2.5%) which represents the edible nature. Sample B is highly soluble in water (73.5% > 53.8%) indicating the easy digestion and absorption.
- Sample B is comparatively low alcohol soluble (88.6% < 95.7 %).
- Microbiological analysis report shows that, total viable aerobic count of both the samples stand within the Standard value (0.14 x 10⁵ col/g , 0.17 x 10⁵ col/g < 1 x 10⁵ col/g), void of Enterobacteriaceae, total fungal count of both the samples also remain within the standard value (0.2 x 10² col/g , 0.46 x 10² col/g < 1 x 10² col/g). Tests also show the absence of Yeast, Mould, Salmonella Sp., Staphylococcus aureus, E. coli and Pseudomonas aeruginosa. Hence the sample B is not contaminated.
- In TLC, the Active Principles of trial drugs were mentioned in Rf values, with respect to the medium used.
- pH tests show the high acidity of the Sample B, when compared to that of A (4.8 > 5.2).
- TDS test shows the high solubility of the Sample B in universal solvent, as compared to that of A (406 x 10⁻¹ g/ml > 349 x 10⁻¹ g/ml).

CONCLUSION

Naagan, one among the 10 Vital airs is located in the Stellate Ganglion, whose activity could be suppressed through VNS. The Sample B – a New Relevant Codified Formulation, named “ Hiccss Plus ” is much more effective in terms of less ash content, solubility in water and palatability as compared to that of A. Further research over this sample will lead a new medicine for the better management of Hiccups.

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