

# Validation of Units Of Measurement (Alavaikal) In Traditional *Cittā* Literature and Its Significance In Traditional Diagnostic Methods: An Epistemological View of Aḷavaikaḷ in *Cittā* Literature

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**Abstract---***The antique Cittā system of medicine has survived since age old period in southern part of India because of its firm basic tenets of Indian Philosophy. While the present day scientific community rejects the intellectual elements used by traditional disciplines claiming them as erroneous belief, it has become mandatory to validate the subjective parameters such as “Aḷavaikaḷ” in classical Cittā text through scientific methodology. The term “Aḷavaikaḷ” in Cittā literature can be referred to as Logics or the prime units of measurement used in the ancient times for disease diagnosis and prognosis. It was also known by the terminology “Piramāṇaikaḷ” which constitute the first ever tool in the quest for knowledge. In this review all these traditional tools of knowledge have been carefully analysed and has been interpreted on scientific grounds to overlook on this traditional concept of Cittā literature with no scope of any myth or fallacy and aims to unravel the relationship between the philosophy of Aḷavaikaḷ with that of epistemology and Logical reasoning.*

**Key words---** *Cittā, Aḷavaikaḷ, Logics, Indian Philosophy, Epistemology.*

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## I. INTRODUCTION

The Principles and basic concepts of Cittā system of medicine are supposed to be postulated by the unbiased seers of South India. Research methodology is a way to systematic collection, analysis, and interpretation of data to solve a research problem [1]. The research methodology of Cittā is based on general term *Aḷavaikaḷ* through which we can understand about the fundamental tools of measurement. Though they are 10 types, they are broadly classified as three main types namely *Kāṅṭal* (Direct observation), *Karutal* (Inference) and *Urai* (Authoritative statement). The present day research also depends on these basic tools whose efficacy has been augmented by the

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utility of scientific and technological innovative devices [2]. The data and information has been gathered from various classics of Cittā literature and the philosophy of *Aḷavaikaḷ* and *Piramāṇaṅkaḷ* has been critically evaluated and analyzed on the inductive and deductive methods in the scientific light [3].

## II. CITTĀ LITERATURE EVIDENCE OF AḶAVAİKAḶ AND ITS ANALOGY WITH LOGICAL REASONING.

*‘Aḷavai kaṅṭal karutal urai*

*Apāvam poruḷ oppu āreṅpar*

*Aḷavai mēlum oḷipu uṅmai*

*Aitika tōḷu iyalpeṅa nāṅku*

*aḷavai kāṅpar avaiyirriṅ*

*mēlum aṅraivar avai ellām*

*aḷavai kaṅṭal karutal urai*

*eṅrim mūṅril aṅkiṭumē*

*civa citaḷavai’*

**Table 1:** Analogy of Cittā Units of Measurement with Logics

S. No	Line No	Cittā terminology	Analogy with logics
1.	Line-1.	<i>Kāṅṭal</i>	Observation
2.	Line-1	<i>Karutal</i>	Inference
3.	Line-1.	<i>Urai</i>	Authoritative statement
4.	Line-2	<i>Apāvam</i>	Indirect perception
5.	Line-2	<i>poruḷ</i>	Logical reasoning
6.	Line-2	<i>Oppu</i>	Analogy
7	Line-2	<i>Areṅpar</i>	Alavai is of the above six types
8	Line-3	<i>Aḷavai mēlum</i>	Also alavai can be extended to the following types
9	Line-3	<i>Oḷipu</i>	Inference by elimination
10.	Line-3	<i>Uṅmai</i>	Probability

11	Line-4	<i>Aitikam</i>	Knowledge obtained by tradition
12	Line-4	<i>Iyalpu</i>	Observation of general laws of nature
13	Line 5 to 8	<i>Aḷavai kāṇṇar avaiyirriṅ</i> <i>Mēlum aṇavar avai</i> <i>ellām</i> <i>Aḷavai kaṇṭal karutal</i> <i>urai</i> <i>Eṇṇim mūṇṇil aṭaṅkiṭumē</i>	Further all these types of Aḷavaikaḷ can be classified under three broad categories <i>Kāṇṭal</i> (Direct observation), <i>Karutal</i> (Inference) and <i>Urai</i> (Authoritative statement)

**Table 2:** Three broader categories of Aḷavaikaḷand its subdivisions

<b>1. Kāṇṭal (Observation)</b>	<b>2. Karutal (Inference)</b>	<b>3. Urai (Authoritative statement)</b>
<p>1. <i>Apāvam</i> (Indirect perception)</p> <p>2. <i>Iyalpu</i> (Observation of general laws of nature)</p> <p>3. <i>Oppu</i> ( Analogy)</p>	<p>1. <i>Porul</i> (Logical reasoning)</p> <p>2. <i>Uṇmai</i> (Probability )</p> <p>3. <i>Oḷipu</i> (Inference by elimination)</p>	<p>1. <i>Aitikam</i> ( Knowledge obtained by tradition)</p>

### III. DISCUSSION

#### ***Kāṇṭal* (Direct Perception)**

This is also called as *pirāṭṭiyakṣa piramāṇam*. *Kāṇṭal* refers to the perception of direct cognition through the five senses including visual (*Kaṇ*), auditory (*kātu*), gustatory (*Nā*), tactile (*Mey*) and olfactory (*Mūkku*) perception. It focuses on obtaining a non-contradictory and categorical knowledge that is free of all fallacies through the sense organs [4], [5]. Any research study involves two major approaches of data collection known as primary data and secondary data. Primary data collection depends on five sense facilities that play a significant role [6]. The eight fold examination (*Eṇvakai tērvu*) of the Cittā system of medicine consist of *Nā* (Tongue examination), *Nīram* (Colour of body), *Moli* (Voice examination), *Viḷi* (Eye examination), *Malam* (Stool Examination), *Mūttiram* (Urine examination), *Sparicam* (Examination by touch) and *Nādi* (Pulse examination). Through these methods the Cittā

physician would analyze and diagnose the disease. Though these examinations involve direct contact with the subjects, it also includes an indirect perceptive approach (*Apāvam*) of disease diagnosis by the presence or absence of specific symptoms that the physician perceives in his mind.

### ***Examination of Urine (Nīrkuṛi and Neykkuṛi) - An Abhaavam Perspective***

*Apāvam* is an indirect method of predicting a disease diagnosis and its prognosis. While at age old times there were no technological advancements around as of today, “*Tēraiyaṛ nīrkuṛi vaṭṭiyam*” is a book that details urine examination. According to which, the urine shall be collected in the early morning in the *Padiga paathiram* (Crystal vessel) and examined within 90 minutes for five parameters such as *Nīṛam* (color), *Nurai* (Density), *Nātram* (odor), *Nurai* (Froth) and *eñcal* (Volume decrease). In *Neykkuṛi* method a drop of gingelly oil is dropped over a urine sample. The spreading pattern exhibited by the oil droplet over the surface of urine gives a confirmatory clue that helps in the diagnosis and prognosis of the disease.

If the oil spreads like a snake, it indicates *Vātam*, a ring indicates *Pittam* and if it floats like a pearl *Kapam* and if it sinks into urine it indicates *Mukkuṛam* (Imbalance of all three humours) [7]. In a research study by Ramya et al [7], the spreading pattern of oil on urine was in the form of sieve [8]. Sieve pattern of spreading, according to the scriptures indicate the incurable nature of the disease. Another study states that the sieve pattern of spreading indicates the disease of genetic origin [9]. Similarly, if the stool is dry like the goat’s excreta the prognosis will be bad. Hence both *Nīrkuṛi*, *Neikkuri* (Urine examination) and *Malakkuri* (Stool examination) can be considered as an indirect way (*Apāvam*) of predicting the disease diagnosis and prognosis.

### ***Iyalpu (Observation of General Laws of Nature)***

The *Cittā* classics emphasize the study of Astrology and seasonal variations in conjunction with disease origin and its prognosis. The revolution of the earth has a profound effect on the behavior, mood, sleep, immunity and general health. The signs of the stars can be a indication of present or future health problems, health concerns and treatment modalities. The planets govern different parts of the body and each planet is said to influence our bodily tissues according to its strength, weakness, association and affliction. For example, New moon aggravates lunacy, paralysis, hysteria and other brain and skin diseases. Also the *Cittā* texts emphasize the imbalance in the three humours *Vātam*, *Pittam* and *Kapam* in the human body during change of seasons through its famous quote “*Anṭattil uḷḷatē piṇṭam*” (That which is in macrocosm is in microcosm) [10].

### ***Oppu (Analogy) in Pulse Diagnosis***

The Analogy (*Upamāṇam*) is the knowledge of the far (unfamiliar) by the virtue of similarity with the well-known [11]. The cause of this knowledge is the cognition based on the similitude [12]. Diagnosis using pulse is a very important aspect of *Cittā* to extend our sensual perceptions to the interior of our body to diagnose and confirm

illnesses. In other words, it performs the job of present day inventions like stethoscope and sphygmomanometers. The pulse movements (pulsations) are analogically compared to the movement of different animals according to the intensity felt for easy interpretation. It is felt mainly at 10 points, out of which the one felt over radial artery is considered the best and is usually felt using 3 fingers (viz, index, middle and ring fingers) in view of assessing the states of *Vātam*, *pittam* and *Kapam* simultaneously. Analogy is also used in urine examination when the spread of gingelly oil drops over a urine sample are analogically compared with different animals and generally known natural phenomenon.

#### IV. INFERENCE

The inference is defined as that which is preceded by the perception and provides inference of the past, present and the future [13]. The inference is explained as the judgement produced by the knowledge of the minor premise qualified by the knowledge of the universal proposition, the major premise. The observer infers the relation of cause and effect. Thus, the inference is widely used as a *Cittā* diagnostic tool of validation. It is based on the pragmatic logic and reasoning. The inferential knowledge is imperatively based on the direct perception. Observation of the cause called as minor premise is the first step of inference followed by the observation of the regularity of positive or negative co-relation between the cause and the effect. The concomitance of the two entities (Major premise) is the basis of inference. If one entity exists, its other concomitant has to be there. This tenet helps the scientist to draw a conclusion [14].

##### a. Karutal (Inference)

##### *The Role of Porul (Logical Reasoning) and Oḷipu (Inference By Elimination) in Tēka Ilakkaṇam (Body Constitution) Analysis*

Human body is maintained by three *tātus* such as, *Vātam*, *Pittam* and *Kapam*. They are responsible for normal physiological conditions of the body and the imbalance of these physiological humours may prone to disease conditions. *Tēki (Prakriti)* represents interesting facet of basic principles of this system of medicine and it has a great impact on predictive medicine. Persons with *Vātam* temperament are tall built with strong thighs, muddy conjunctiva, dark skin complexion, splitted hair ends, desire for sweet, sour, salt and hot foods, crepitating joints etc. Persons with *Pittam* temperament will have lean and minimal muscle, always feel a sensation of heat, Hyperhydrosis, reddish conjunctiva, easily provoked and short tempered, minimal body hairs, early greying of hair, Acne and hyperpigmented patches in the body, desire sweet, astringent, bitter food, less tolerance to hunger and thirst, disciplined, brave, emotional etc. For persons with *Kapam* temperament there will be more musculature and adipose tissue with huge and shiny appearance. Broad shoulder and well built muscles, Beautiful eyes, clear conjunctiva, thick eyebrows, loud voice, slow walk, Love for bitter, astringent, pungent, hot food, patience, intelligent, have very good sleep etc. Hence the *Cittā* physician needs an intense skill to logically analyze the patient for the presence of above features and to the ability eliminate the characteristics that are absent in order to draw an inference about the *pirakriti (Tēka ilakkaṇam /Body constitution)* of a patient [10].

### **b. Uṅmai (Probability)**

Probability is the measure of the likelihood that an event will occur. *Uṅmai (Sambavam)* is an *Aḷavai* that has its application in the *Cittā* diagnostic criteria *Māṅikkaṭai nūl*. It is one of a unique diagnostic tool in *Cittā* system with the procedure of measuring the wrist circumference of a patient with an inelastic thread and interpreting it in patient's own finger breadth units and drawing inference of a prognosis/diagnosis of a disease based on the measurement. For example if the *Māṅikkaṭai nūl* measures 10 Finger breadths (fbs) The patient may be prone to Pricking pain in chest and limbs, gastritis and ulcer result. Recent studies also suggest that Wrist circumference could be considered as a new anthropometric assessment for prediction of type 2 diabetes and metabolic syndrome [15]. Another study suggest the presence of a close relationship among wrist circumference, Transversal wrist internal (TWI) bone tissue area, and insulin resistance in overweight/obese children and opens new perspectives in the prediction of cardiovascular disease [16]. A research study by Sathiyabama et al has concluded that most of the patients (25/58) with uterine fibroids fall under 10-10.75fbs [17]. In *Cittā* system probability also plays its role in assessing the *Marāṇa Kuṛikaḷ* (death clock) through *Nadi nadai* (Pulse diagnosis) through accurate insight and wisdom and it indicated that medicines could become useless under such circumstances [10].

### **c. Urai (Authoritative Statement)**

Authoritative statement (*Urai*) consists of the principles of the trustworthy persons who possess credible knowledge without any acquisition and aversion. In *Cittā* system of medicine the ancient *Cittārs* have been considered as the source of valid knowledge and their words and works of these great personalities that has been transmitted from antique palm leaves manuscripts to text books can be quoted for authoritative knowledge. The selection of drugs, dosage and indications of classical *Cittā* medicines should be used on the basis of authoritative traditional scriptures. A Researcher can administer these authoritative statements without discussion since the information described in the text is approved by the ancient scriptures and its benefits are perceptible [18].

### **d. Aitikam (Traditional Beliefs)**

The *Cittārs* also had traditional beliefs or customs called "*Tūtuvaṅ ilakkaṇam*" which was used in predicting the prognosis of disease. In this aspect, it is mentioned in ancient texts that when a patient approaches the physician when he is involved in relaxed daily activities the prognosis will be good and if the patient disturbs the doctor when he is involved in his personal affairs the vice-versa [10]. Upon keen and thoughtful evaluation of these facts it would reveal the necessity of a clear mind for a physician to carefully diagnose and treat the patient.

Recent researches also stress on good interpersonal relationship between the doctor and the patient to achieve the therapeutic goals. Further, as per the *Cittā* concept the human body and the universe is said to be made of the five elements earth, water, fire, air, ether. By using directional presence of elements, we can balance the elements of the body to bring it in equilibrium state to maintain good health. Hence the place we live act as a medium to facilitate the exchange of energy between humans and universe. Therefore the ancient texts consider the east

direction to be a positive field of energy where the patient can approach the physician to have better prognosis of diseases [19].

## V. CONCLUSION

Though this review the principles of Cittā called “Aḷavaikaḷ” which are supposed to be firm and unchanging has been discussed and validated through scientific methodology to emphasize the supreme knowledge of Cittārs towards disease diagnosis. This sort of primary understanding of traditional knowledge followed by a search into scientific linkage will be more appropriate for the growth of any Traditional medicine. This work also demands an imperative need to design guidelines for Cittā research methodology based on validation of *Cittā* fundamentals and its diagnostic tools.

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## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this article.

## AUTHORS CONTRIBUTION

All authors have contributed for this work such as conceptualizing, manuscript preparation, editing and Literature reviewing.

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## ETHICAL CLEARANCE

Since this is a review article and it does not involve humans or animals there is no need of Ethical clearance certificate.

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