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Preliminary Bio-Chemical Evaluation Acidic, Basic Radicals of a Novel Siddha Metallo-Mineral Formulation *Kaalamega Narayana Chendhooram* as Mentioned in *Athmaraksha Mirtham Ennum Vaithiya Saara Sangeraham*

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ABSTRACT

Siddha system of medicine was the most primitive among all other medical system which was practiced in India particularly in Tamilnadu. Siddhars had the destiny in the field of human physiology, pathology, and pharmacology all along within nature, they realized by their own experience. This system of medicine deals with the physiological, psychological, social and spiritual well being of an individual. This system of medicine comprises a complex pharmacology with the uses of flora, fauna, metals and mineral products. The chemical substances such as acid and basic radical which present in the medicinal preparation are essential for healing various diseases. Thus the research paper of biochemical evaluation of a novel Siddha higher order Metallo-Mineral Formulation *Kaalamega Narayana Chendhooram (KMNC)* shows the presence of various acid, basic radicals which essential for treating challenging diseases of the current modern world with lesser adverse effect and easy affordability.

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INTRODUCTION

Whenever the art of medicine is loved, there is also a love of humanity. – Hippocrates

Siddha system is a traditional system of medicine with the oldest holistic management and meticulously documented the medicines and it was being practiced by the large population in India particularly in south India. The major revolutionary development of this siddha system of traditional medicines were because of its safety, efficacy and quality. This system of medicine involved not only to preserve the rich traditional heritage but it also involved to rationalize the effective use of natural products with the health care needs[1,2].

However, the siddha medicinal system comprised of three major divisions with its complex pharmacology as plant kingdom, animal kingdom and Inorganic compounds (IOC). Then the IOC have four subunits such as Metals (Ulogam)-12, Minerals (Karasaram)-64, Hydrochemicals (Uparasam)-24 and Toxins (Paasanam)-1205[3].

This system of medicine is unique among the Indian system of medicine, because It was believed to have been developed by the great siddhars, the ancient supernatural spiritual saints in India[4].

The good physician treats the disease, the great physician treats the patient who has the disease. – Hippocrates.

Medicinal preparation of Siddha system was pioneer in emphasizing the biological activities of several phytocomponents with the respective etiology and pathophysiology of several challenging diseases which are emerging in human beings and animals. The most pathetic scenario is most of these medicinal preparations are extinct and not used currently. However, this system of medicine Provide several tremendous advantages in clinical practice. Medicinal preparation of Siddha system was mainly based on reverse pharmacology.

In recent decades people from the diverse part of the World preferred to use natural products which had no adverse effect or with minimum side effects, minimum expensive, easy affordable in compared with the modern synthetic drugs. Thus it is the best time to explore the siddha medicinal preparations to the World. Thus an attempt was made through this paper by standardizing the siddha formulations with preliminary bio-chemical analysis. The

bioactive molecules which are present in the medicinal preparations are responsible for treating various life challenging diseases in the current modern era.

The acidic and basic radicals are the biochemical substances present in the prepared *KMNC* showed a potent for treating diseases like Cancer. The Biochemical analysis for basic radicals of *KMNC* shows the presence of Calcium, Mercury, Arsenic, Sodium, Ammonium, Zinc and the Biochemical analysis for acidic radicals of *KMNC* shows the presence of Sulphate, Chloride and Nitrate.

THE DIFFERENT TYPES OF *KMNC* PREPARATIONS WERE AVAILABLE IN DIFFERENT CLASSICAL SIDDHA LITERATURES. THEY ARE LISTED AS BELOW:

- Vaiththiya Viththuvan Mani S.Kannuchamipillai, Chikichcha Raththina Theepamennum Vaithya Nool, Page No: 247, B.Rathna Nayaagar & Sons, ThirumakalVilasa Achchakam, Chennai 79.

- Kandhasamy Mudhaliyaar, Athmaraksha Mirtham Ennum Vaithiya Saara Sangeraham, First edition 1931, Page No : 496, B.Rathna Nayaagar & Sons,Thirumakal Vilasa Achchakam, Chennai 79.

- Vaiththiya Viththuvan Mani S.Kannuchamipillai, Kannusamy Paramparai Vaithiyam, Page No : 327, B.Rathna Nayaagar & Sons, Thirumakal Vilasa Achchakam, Chennai 79.

- Vaiththiya Viththuvan Mani S.Kannuchamipillai, Kannusamiyam, Page No : 120, B.Rathna Nayaagar & Sons, Thirumakal Vilasa Achchakam, Chennai 79.

- Vaiththiya Viththuvan Mani S.Kannuchamipillai, Kannusamy Paramparai Vaithiyam, Page No : 327, B.Rathna Nayaagar & Sons, Thirumakal Vilasa Achchakam, Chennai 79.

All the above mentioned the classical siddha textbooks shows the same ingredients and the same indications of *KMNC* but all the above preparations follows different medicinal preparation methods.

The current research derived the medicinal preparation the siddha text, Kandhasamy Mudhaliyaar, Athmaraksha Mirtham Ennum Vaithiya Saara Sangeraham, First edition 1931, Page No: 496, B.Rathna Nayaagar & Sons,Thirumakal Vilasa Achchakam, Chennai 79.

SELECTION OF THE DRUG:

For this present study, the metello-mineral formulation **"*KAALAMEGA NARAYANA CHENDHOORAM*"** was taken as the compound drug preparation for oral cancer mentioned in the classical Siddha literature "*Athmarakshamirtham Ennum Vaithiya Saara Sangeraham"* written by *Kandhasamy Mudhaliyaar,* pg no:493,First Edition 1931[5].

Ingredients of the drug:

1. Purified *Vediuppu [Potassium nitrate]* – 840 gm
2. Purified *Thurusu [Copper sulphate]* – 210 gm
3. Purified *Padikaaram [Aluminium potassium sulphate (Alum)]* – 840 gm
4. Purified *Vengaram [Sodium bicarbonate* (Borax) *]* – 210 gm
5. Purified *Navacharam [Ammonium Chloride]*-210gm
6. Purified *Pooneeru [Impure Sodium Carbonate (Fullers Earth)]* – 105 gm
7. Purified *Jaathilingam* [Red sulphate of mercury]-525gm
8. Purified *Gandhagam [Sulphur]* – 420 gm
9. Purified *Kalluppu [Sodium chloride]*- 210 gm
10. Purified *Rasam [Hydragyrum]* – 1050 gm
11. Purified *Aritharam [Tri sulphate of Arsenic* (Yellow Orpiment) *]*- 350 gm
12. Purified *Manosilai [Di suphate of Mercury* (Red Orpiment) *]*- 140gm

Collection of the raw materials:

All the raw materials were purchased from R.N. Rajan country drug store, Parrys corner, Chennai.

Identification and Authentication of the drug:

The raw materials were identified and authenticated by the experts of *Gunapadam*, Government Siddha Medical College, Arumbakkam, Chennai- 106.

The specimen sample of each raw material has been kept in the PG *Gunapadam* department individually for future reference.

Fig no:1: A BIRD VIEW OF PREPARATION OF *KMNC*

Purification of the drugs:

Purification process was done as per the classical Siddha literature.

1. Purification of Pottasium Nitrate (*Vediuppu)* :

Materials Required:

1. Salt – 100gm
2. Water – 400gm
3. Fermented buttermilk – 100gm
4. Lime juice – 100 gm

Procedure:

Water was added to the potassium nitrate and boiled on a hearth with mild flames. The white yolk of eggs (4 nos) were added to every 1400gm of salt and the bubbles thus appeared with impure substances were removed with wooden spoon.

The ingredients were then transferred to another pot, sealed with mud pasted cloth, filtered and transferred to another pot, sealed with mud pasted cloth, filtered and kept in places without aeration. Next day the water was filtered and salt was sun shade. This process was repeated for seven times to get it purified.

2. Purification of *Padikaaram* (Aluminium potassium sulphate (Alum)

The alum was dissolved in water and it was filtered, boiled. Then it was cooled to get purified form.

3. Purification of *Thurusu* (Copper sulphate):

The copper sulphate was fried, till it turns to whitish.

4. Purification of *Vengaram (*Sodium biborate*):*

Borax was bundled and hanged in the buffalo's dung solution and boiled. The bundle was cleaned with fresh water and insolated to get it in purified form.

5. Purification of *Navacharam* (Ammonium chloride):

Navacharam (Ammonium chloride) was dissolved in hot water and filtered. After it was cooled, it was poured in a broad mouthed vessel and insolated; the salt was formed in a purified form. It was preserved with small quantity of the root of jequirity in a bottle.

6. Purification of *Kalluppu* (*Sodium chloride)*:

Kalluppu was dissolved in vinegar and clean with a cloth, dried in a sunshade.

7. Purification of *Pooneeru* (*Impure Sodium Carbonate) :*

Fuller's earth 1.3 litre was soaked in dew's water 5.2 litres and allowed to settle. Next morning it was churned well and the outer cream layer was removed. The remaining mixture

was in procelin plates and insolated to obtain purified form. This process was repeated for ten times and stored in a bottle.

8. Purification of *Rasam* (Mercury) Materials Required:

Mercury	- 35 gm
Brick powder	- 100 gm
Turmeric powder	- 100 gm
Acalypha juice (*Acalypha indica*)	- 1.3 litre

Procedure:

Mercury was triturated with brick powder and turmeric powder for one hour respectively and washed with water. Then the Mercury was boiled with the juice of Indian *Acalypha* till the juice completely evaporates. And thus mercury was purified.

9. Purification of *Lingam* (Cinnabar):

Lime juice, cow's milk and the *Acalypha indica* juice were mixed together in equal proportion and allowed to fuse Cinnabar so as to get it in a purified potent form.

10. Purification of *Thaalagam* (Yellow Orpiment): Materials required:

Arsenic trisulphide	– 35 gm
Cow's urine	– 1 litre
Indian *acalypha* juice	– 300 ml
Limestone	– 300 gm

Procedure:

Arsenic trisulphide was bundled and kept immersed in the mixture of limestone, *Acalypha indica* juice and cow's urine and heated to get purified.

11. Purification of *Gandhagam* (sulfur):

Materials Required:

Sulphur	-	35 gm
Butter	-	35gm

Cow's milk - 150ml

Procedure:

Sulphur was placed in an iron spoon. Butter was added and the spoon was heated till the butter melts, this mixture was immersed in inclined position in cow's milk. The procedure was repeated for about 7 times and thus sulphur was purified. Fresh milk was used each time.

12.Purification of *Manosilai* (Red orpiment) Materials required:

Red orpiment - 35gm

Cow's buttermilk - 125ml

Procedure:

Red orpiment was triturated with cow's buttermilk for 3 hours. It was dried to get purified form[6].

Preparation of the trial drug – "*KAALAMEGA NARAYANA CHENDHOORAM*"

1. Purified *Vediuppu [Potassium nitrate]* – 840 gm
2. Purified *Thurusu [Copper sulphate]* – 210 gm
3. Purified *Padigaram* [Aluminium potassium sulphate (Alum)] – 840 gm
4. Purified *Vengaram [Sodium bicarbonate* (Borax) *]* – 210 gm
5. Purified *Navacharam [Ammonium Chloride]*-210gm
6. Purified *Pooneeru [Impure Sodium Carbonate (Fullers Earth)]* – 105 gm
7. Purified *Jaathilingam* [Red sulphate of mercury]-525gm
8. Purified *Gandhagam [Sulphur]* – 420 gm
9. Purified *Kalluppu [Sodium chloride]*- 210 gm
10. Purified *Rasam [Hydragyrum(Mercury)]* – 1050 gm
11. Purified *Aritharam [Tri sulphate of Arsenic* (Yellow Orpiment) *]*- 350 gm

12. Purified *Manosilai [Di suphate of Mercury* (Red Orpiment) *]*- 140gm.

Procedure:

- 840 gm of 8th solution of *Vediuppu [Potassium nitrate]* and *Padigaram* [Aluminium potassium sulphate *(Alum)]* were taken.

- Along with that, 210 gm of *Thurusu [Copper sulphate]*, *Vengaram [Sodium bicarbonate* (Borax)*]*, *Navacharam [Ammonium Chloride]*, *Kalluppu [Sodium chloride Impura]* were taken and then mixed with 105 gm of *Pooneeru* [*[Impure Sodium Carbonate (Fullers Earth)]*.

- Above ingredients were ground into fine powder and divided into 3 parts.

- First part of the powder was underwent distillation process, the end product was mixed with 2nd part of powder and dried.

- Second part of the powder was underwent distillation process, the end product was mixed with 3rd part of powder and dried.

- Third part of the powder was undergoes distillation process, the final end product was taken and kept in a sealed bottle.

- The *Jaathilingam* [Red sulphate of mercury]-525 gm, *Aritharam* [Tri sulphate of Arsenic (Yellow orpiment)]-350 gm, *Gandhagam [Sulphur]* 420 gm, *Manosilai [* Di sulphate of mercury (Red Orpiment) *]* 140 gm wereground, along with the end product of distillation for 12 hours (4 *saamam*) and made into fine powder and dried.

- Dried powder was kept in a mud pot which was sealed with 7 mud pasted plaster.

- Another mud pot with small quantity of sand was taken and above preparation was kept into it and sealed the lid with mud pasted plaster.

- The mud pot was ignited by using *Aavarai* stick for 30 hours (10 *saamam*), after 30 hours "*Chendhooram*" was obtained

Drug profile:

Drug name : *Kaalamega Narayana Chendhooram*

Dosage : 244 mg of *Chendhooram* [1/2 *Panavedai*]

Route : Enteral (oral)

Adjuvant : Thipili chooranam with honey (bd for 48 days – 1 mandalam)

Indications: *Kannaputru* [ORAL CANCER], *Elaippu* [Tuberculosis], *Kuttam 18* [Hansen´s Disease]

Reference: *"Athmaraksha Mirutham Ennum Vaithiya Saara Sangeeraham*"[5].

Fig no: 2. Ingredients of *Kaalamega Narayana Chendhooram*:

Purified *Vediuppu [Potassium nitrate]*

Purified *Thurusu [Copper sulphate]*

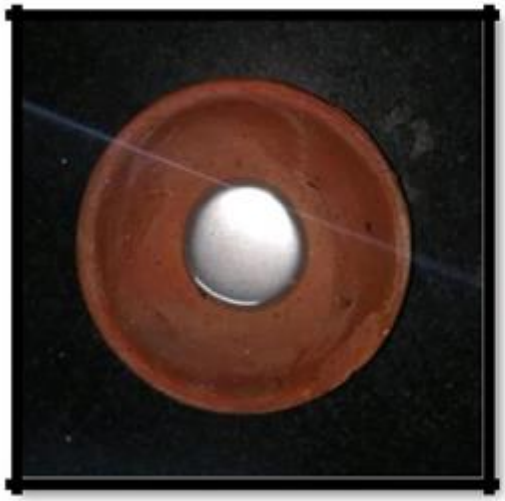
Purified *Padigaram* [Aluminium potassium sulphate (Alum)]

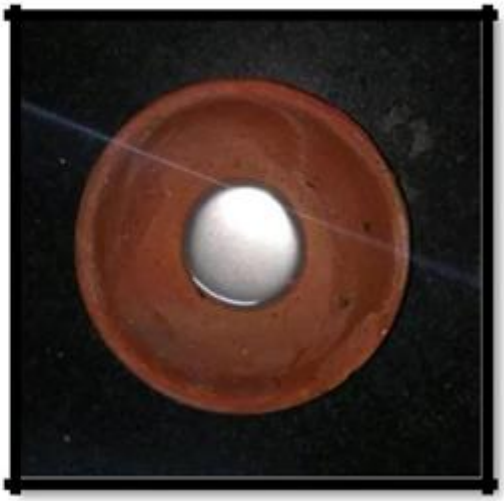
Purified *Vengaram [Sodium bicarbonate(Borax)]*

Purified *Navacharam [Ammonium Chloride]*

Purified *Kalluppu [Sodium chloride Impura]*

Purified *Pooneeru [Impure Sodium Carbonate (Fullers Earth)]*





Purified *Rasam [Hydragyrum]*

Purified *Jaathilingam* [Red sulphate of mercury]

Purified *Aritharam* [Tri sulphate of Arsenic (Yellow orpiment)]

Purified *Gandhagam [Sulphur]*

Purified *Manosilai [Red Orphiment]*

Process 1:

Fig NO:3: Preparation of *Kaalamega Narayana Chendhooram*:

Preparing for *Thravagam*

Process 2.



Divided into 3 parts

Process 3.


1st part undergoes distillation process **Collection of *Thravag***

Process 4.

The obtained *Thravagam* was used to grind the secondpart

Again the second part underwent distillation process

Process 5.

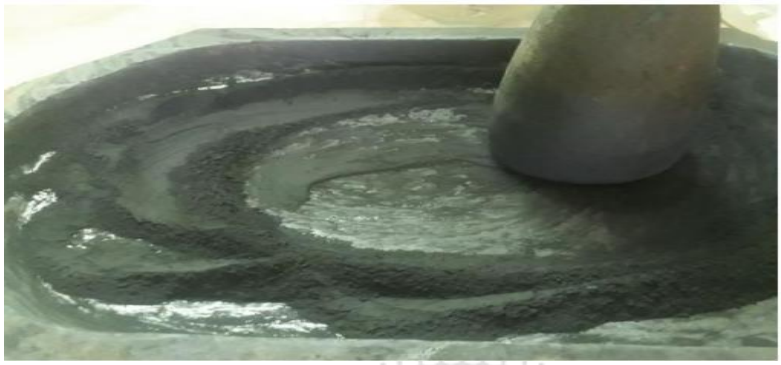
The obtained *Thravagam* is used distillation to grind the third part

Again the third part underwent process

Process 6.

The end product of distillation was sealed in a bottle.

Process 7.



Grinding of prepared medicine

Process 8.

Final product was sealed with mud pasted cloth

Process 9.

Ignition of final *Chendhooram*

Final end product of *Chendhooram*

***Chendhooram*[5]**

Chendooram:

Definition:

Chendooram is a category of medicines made from metals or minerals (arsenicals or mercurial's or salts) by grinding them with specified juices or distillates or extractives and subjecting them to a process of sublimation or calcinations or burning or frying or exposing to insolation till the characteristic reddening of the product takes place. The *Chendooram* are said to retain their potency for 75 years.

Method of preparation:

Usually, two method of preparation are adopted in their processing, with some exceptions and variants. Such as:

1. Sublimation by the sand – bath process
2. Calcination.

Other method of preparations:

1. Prepared without heating (*Araippu Chendooram)*
2. Prepared by open heating (*Erippu or Varuppu Chendooram)*
3. Prepared by applying heat in the range close to 100◦c (*LaguPuda Chendooram).*

Specifications for *Chendooram*

1. *Chendooram* is red in nature, well fine in particle size and tasteless.

2. With suitable adjuvant they possess therapeutic values.

3. They are said to retain their potency for 75years[7].

Thus the prepared medicine KMNC was subjected to Sublimation by the sand – bath process.

IMPORTANCE OF HIGHER ORDER MEDICINES:

- Higher order medicines were very effective even in the very minimum dose of the drug.
- They also involved in treating many challenging incurable diseases.
- They also increased the bioavailability of the drug.
- Shelf life is higher in higher order medicines in which metals and minerals were used when compared to the plant products.
- Therapeutic efficacy is also very high with the higher order formulations.
- They provide quick remedy even in small doses.
- The great specialty of higher order formulation is adoptogenicity. (ie) the same drug with different adjuvants or without adjuvants, it can be successfully used for various diseases [8].

STANDARDIZATION OF THE DRUG *KMNC:*

Standardization of drugs helps to prove its identity and determination of its quality and potency. Standardization of the Metallo-mineral formulation is based on the qualitative and quantitative analysis through Physico-chemical investigations and instrumental analysis. Thus an attempt were made to standardize *KMNC* through Biochemical analysis of the prepared Metalo--mineral drug *KMNC* in which the experiment was done by me in the laboratory of Biochemistry in Government Siddha medical college, Arumbakkam, Chennai.

BIO-CHEMICAL ANALYSIS:

The biochemical analysis was done to identify the acid and basic radicals present in the *KMNC.*

Preparation of extract:

5g of *KMNC* was taken in a 250 ml clean beaker and 50 ml of distilled water was added, boiled well and allowed to cool and filtered in a 100 ml volumetric flask and made up to 100 ml with distilled water.

PRELIMINARY BASIC AND ACIDIC RADICALS

Test for basic radicals:

1. Test for Potassium:

To a pinch of the *KMNC* 2 ml of sodium nitrate and 2 ml of cobalt nitrate solution in 30% glacial acetic acid was added and observed for the presence of yellow precipitate.

2. Test for Calcium:

To 2 ml of *KMNC* extract, 2 ml of 4% ammonium oxide solution was added and observed for the formation of white precipitate**.**

3. Test for Magnesium:

To 2ml of *KMNC* extract, drops of sodium hydroxide solution was added and watched for the appearance of white precipitate.

4. Test for Ammonium:

To 2ml of *KMNC* extract few ml of Nessler's reagent and excess of sodium hydroxide solution are added for the appearance of brown colour.

5. Test for Sodium:

Hydrochloric acid was added with a pinch of the *KMNC*, made as paste and introduced into the blue flame of Bunsen burner and observed for the appearance of intense yellow colour.

6. Test for Iron (Ferrous):

The *KMNC* extract was treated with Conc. HNO3 and ammonium thiocyanate and waited for the appearance of blood red colour**.**

7. Test for Zinc:

To 2 ml of the *KMNC* extract drops of sodium hydroxide solution was added and observed for white precipitate formation.

8. Test for Aluminium:

To the 2m1 of the *KMNC* extract sodium hydroxide was added in drops and changes are noted.

9. Test for Lead:

To 2 ml of *KMNC* extract 2ml of potassium iodide solution was added and noted for yellow coloured precipitate**.**

10. Test for Copper:

a. A pinch of *KMNC* was made into a paste with conc. Hcl in a watch glass and introduced into the non-luminous part of the flame and noted for blue colour appearance.

b. To 2 ml of *KMNC* extract excess of ammonia solution was added and observed for the appearance of blue coloured precipitate**.**

11. Test for Mercury:

To 2m1 of the *KMNC* extract, sodium hydroxide solution was added and noted for yellow precipitate formation**.**

12. Test for Arsenic:

To 2 ml of the *KMNC* extract 2ml of sodium hydroxide solution was added and brown or red precipitate formation was noted.

Test for acid radicals

1. Test for Sulphate:

To 2 ml of the *KMNC* extract, 5% of barium chloride solution was added and observed for the appearance of white precipitate.

2. Test for Chloride:

The *KMNC* extract was treated with silver nitrate solution and observed for the appearance of white precipitate.

3. **Test for Phosphate:**

The *KMNC* extract was treated with ammonium molybdate and conc. HNO3 and observed for the appearance of yellow precipitate.

4. **Test for Carbonate:**

The *KMNC* extract was treated with conc.HCl and observed forth appearance of effervescence.

5. Test for Fluoride & Oxalate:

To 2ml of *KMNC* extract 2ml of dilute acetic acid and 2ml calcium chloride solution was added and heated and watched for cloudy appearance.

6. Test for Nitrate:

To 1 gm of the *KMNC*, copper turnings was added and again conc.H2SO4 was added, heated and the test tube was tilted vertically down and observed for any changes[9].

RESULTS AND DISCUSSIONS:

BIOCHEMICAL ANALYSIS:

Table No:1: RESULTS OF BASIC RADICALS:

S. No.	PARAMETERS	RESULTS
1.	Test for Potassium	Negative
2.	Test for Calcium	Positive
3.	Test For Magnesium	Negative
4.	Test For Ammonium	Positive
5.	Test For Sodium	Positive
6.	Test for Iron (Ferrous)	Negative
7.	Test For Zinc	Positive
8.	Test For Aluminium	Negative
9.	Test For Lead	Negative
10.	Test for Copper	Negative
11.	Test For Mercury	Positive
12.	Test for Arsenic	Positive

Table No. 2: RESULTS OF ACID RADICALS:

S. No.	PARAMETERS	RESULTS
1.	Test for Sulphate	Positive
2.	Test for Chloride	Positive
3.	Test for Phosphate	Negative
4.	Test for Carbonate	Negative
5.	Test for fluoride & oxalate	Negative
6.	Test For Nitrate	Positive

DISCUSSION:

- The Biochemical analysis for basic radicals of *KMNC* shows the presence of Calcium, Mercury, Arsenic, Sodium, Ammonium and Zinc.

- The Biochemical analysis for acidic radicals of *KMNC* shows the presence of Sulphate, Chloride. And Nitrate.

- The Presence of these radicals helps *KMNC* for its therapeutic effect and this medicine was selected for treating Oral cancer thus the interpretation were made regarding with cancer.

Calcium:

A randomized controlled trial found that 1400–1500 mg supplemental calcium and 1100 IU vitamin D3 reduced aggregated cancers with a relative risk[10].

Ammonium:

Ammonia generated from the amino acid catabolism following glucose deprivation can also stimulate autophagy. This ammonia induced autophagy also promotes cell survival and thus represents a promising therapeutic target in cancer treatments[11].

Sodium:

Sodium has cytotoxic effect. Increased sodium level depresses the cancer cell growth[12].

Zinc:

- Zinc is needed for its immune function, wound healing and blood clotting. Some experiments shows, that the Zinc slows the growth of cancer cells in the laboratory[13].

- The regulatory effects of zinc on the NF-kB pathway makes zinc highly significant in the prevention of cancer cell growth patterns. Zinc is associated with inhibiting angiogenesis in tumor cells as well as the secretion of inflammatory cytokines.

- Zinc deficiency can promote a variety of human cancers including esophageal, cervical as well as cancers related to the digestive tract, head, and neck. Zinc supplementation has been shown to reduce the number of tumours and carcinogenic severity.

- Zinc is especially important in prostate, Bladder, skin and breast cancers. Zinc is observed to lower inflammation, suppress abnormal tissue growth, and lower the incidence of larger skin lesions and more deleterious tumours Zinc has been found to stimulate apoptosis in abnormal cells[14].

Mercury:

Miles (1926) introduced perchloride of mercury as an antiseptic agent in rectal surgery. Goligher et al. (1951), Morgan (1955) and Keynes (1961) introduced the technique of flushing the colon and rectum in restorative cancer surgery. Perchloride of mercury solution

was used as a anti-cancer agent in renal surgery. It is therefore concluded that mercury perchloride is a safe anti-cancer agent when it is used in a large bowel surgery. H Brendan Devlin *et al.*

Arsenic:

During the 18th and 19th centuries, a number of arsenic compounds were used as medicines. In that Arsenic trioxide has been used in a variety of method of treatment over the past 500 years, but most commonly used in the treatment of cancer. In 2000, the FDA approved this compound for the treatment of acute promyelocytic leukemia that is resistant to ATRA.

Sulphate:

Hydrazine sulphate is a chemical compound that has been studied as a treatment for cancer. Sulphate contains anti-cancer property.

Chloride:

Chloride has cytotoxic effects. the presence of these radicals helps *kmnc* for its therapeutic effect. The human $CLCA_2$(calcium activated chloride channels regulator 2) enhances chloride in breast cancer cells and reduces pH to 6.7. This observation gives some chloride channels are able to promote apoptosis by reducing intracellular pH.

CFTR is involved in multiple molecular pathways that modulate cell inflammation and apoptotic signaling, so it is possible that mutations in this gene could also modify the risk of development of cancer. Mutations in the *CFTR* gene could also have a protective role in some tumours such as lung cancer, melanoma, colon, and breast cancer. Furthermore, low expression of *CFTR* polymorphisms may contribute to a reduced risk of prostate cancer[15].

Nitrates:

Nitrates and nitrites occur naturally in fruit and vegetables, which are regarded as an important part of a healthy diet due to the powerful evidence of beneficial health effects against cancer. Nitrates play an important role inhibition of tumour growth[16].

CONCLUSION:

Siddha system of medicines have its uniqueness in treating many challenging diseases with minimum or without adverse effect in this current modern World. Due to the presence of certain bio-active molecules in siddha system of medicine, it retains its efficacy for a long time. The unique form of pharmacology in siddha medicine was vast and with complex pharmacology in nature. This paper explored the nature of *Chendhooram*, puridication process of higher order medicine, Standard Operative Procedure (SOP), and the presence of biochemical substances a novel Siddha Metallo-Mineral Formulation *Kaalamega Narayana Chendhooram (KMNC).*

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