
Satheesh C¹, Balasubramanian S², Kalaiselvi D³, Abinaya R²

¹Agash Siddha Wellness Centre and Lab, Chennai- 610044, Tamil Nadu- India
²Shanmuga Siddha Clinic and Laboratories, Thanjavur- 613006, Tamil Nadu- India
³Rasi Clinic, Thottiyam-621215, Trichy-Dist, Tamil Nadu- India

Article History:
Received on: 20 Jun 2023
Revised on: 05 Jul 2023
Accepted on: 06 Jul 2023

Keywords:
KMNC, Prostate Cancer, Siddha pharmaceuticals

INTRODUCTION

Most traditional healthcare systems are based on the Siddha philosophy, providing the best care for various illnesses. Indians use the Siddha medication system, which has also attracted attention internationally due to its long-term advantages for general health and lack of adverse effects [1]. Chendhooram-mand Parpamare is like "lifesaving" and also "miracle" drugs. One of the more potent medications in the Siddha pharmaceutical method is called Chendhooram. The Siddhars produced them using the principles of nanomedicine. Recent scientific developments have investigated the possibility of using nanoparticles in the biomedical sector, particularly in treating cancer and several degenerative disorders [2]. Cancer is just one of the conditions for which Chendhooram has been utilized as a treatment.

In Tamil Nadu, the Siddha methodology for medicine is utilized extensively, and it adheres to the idea that medication ingredients should come from plants, metals, minerals, and animals. A few leading causes of death that worsen daily are Oral, Lung, and Prostate cancer. Therapeutics with little side effects are required for the treatment of cancer. Numerous
different formulas are provided in Siddha literature for the treatment of cancer. The quality and therapeutic benefits of Siddha medications must now be established through standardization.

The Siddha system is a repository of secret scientific knowledge with various medications for treating all illnesses. Due to the Siddha system’s sophisticated chemistry and the Siddhars’ guidelines, several hundred minerals and metal preparations have been created, making it well-suited to treat every kind of sickness.

Medicine for the internal body and external body are the two categories under which medicine is categorized in the Siddha philosophy. The Siddha School of Medicine specifically cites Chendhooramas as one of the 32 categories of internal medicine. Chendhooramas are small, usually calcified particles made by a specialized procedure using refined metals, minerals, and animal-derived substances. They are oxidized with cow dung cakes in enclosed crucibles in pits for the dam process. Various techniques are used in this procedure to change metals or minerals into sulfides or oxides. Chendhooram is a type of acquired nanoparticle that can be consumed with carriers like milk, ghee, honey, etc., according to the condition. It improves their biocompatibility and makes them more readily available, eliminating unwanted negative consequences.

According to ancient Siddha literature, it has a mean lifespan of 100 years. Drug standardization entails confirming their identity, the steadfastness of their purity, and conformity. The efficacy and safety of pharmaceuticals can be impacted by an absence of strict quality management, which could negatively affect consumers.

Also, for the treatment of Yonisputru (cervical cancer), Lingaputru (Scrotal Cancer), Pavuthiram (fistula), Megapulligal, Megapadai, Venkuttam, Kandamalai, Meganoigal (venereal disease), the present research was conducted to examine the physicochemical also biochemical belongings of KMNC that are cited in Anuboga Vaithiya Navaneedham Part-6 of the Siddha literature.

According to estimates, there will be 342,000 cervical cancer deaths and 604,000 fresh instances of cancer among women in the year 2020, with deaths from Oral, Lung, and Prostate carcinoma accounting for around 90% of all deaths worldwide.

Therefore, people seek alternative medical practices to treat Oral, Lung, and Prostate cancer. The early Siddha literature contains a long list of medications prescribed by Siddhars for the treatment of cancer. We must investigate these drugs’ efficacy and safety for human use using evidence-based methods. Because of this, standardization is crucial for ongoing preclinical and clinical research.

The World Health Organization recognizes the importance of employing minerals to improve public health. Standardization is used to evaluate the potency and purity of herbal and mineral medications using multiple criteria, such as physical, chemical, and biological observation. Siddhars described numerous standardization techniques and testing protocols for various types of drugs.

**Standardization**

**Standardization by Classical Siddha Literature**

The medication KMNC was investigated using the fundamental methods described in Classical Siddha Literature as follows:

**Color:**
Chendhooram often has a white color. Everyone observed the Color in broad daylight when the RP was taken.

**Swimming in water:**
Using this method, it is possible to ascertain whether the KMNC has a higher or lower density than water. KMNC didn't instantly sink to the bottom when it was delicately dusted on the still water’s surface into a container. The observation that KMNC particles floated on the water’s surface suggested the trial drug’s lightness.

**Patterns on the fingers:**
Chendhooram should have the look of freshly made ultra-fine powder. Fine powder can fill in the lines on fingerprints by placing it between the thumb and the index finger. KMNC was massaged and squeezed between the thumbs with the index finger. The fact that the KMNC got into the finger’s lines and was challenging to get out of them proved how fine it was.

**Unchangeable reaction:**
When simmered by a blend of sugarcane jaggery, hemp-based fine particles, melted butter, and honey; the nicely-organized Chendhooram cannot be restored to its metallic condition.

**Lack of flavor:**
A properly prepared param should have no flavor at all. Whether sweet or bitter, any flavor indicates that the preparation was insufficient and needed more calcination.

There was no noticeable flavor when a minimal amount of KMNC was maintained on the surface of the tongues.
Lusterless:
If there are any shimmering particles in the Chendhooram, this suggests that the product was manufactured improperly and still contains dangerous elements such as metals, minerals, and other unmodified substances. A properly built Chendhooram shouldn’t have any shiny materials. The KMNC was put into the Petri dish. Also, any of the clusters was assessed outside using a magnifier. In the Chendhooram, there was no luster. Table 1 presents the results.

The drug’s uniformity
When medicine is standardized, its superiority, cleanliness, and uniqueness are all established using different standards, such as morphological, microscopy, chemical, physical, also microbiological evaluations.

Standardized Dosage of Medications KMNC:
Medication standardization helps determine their identity and allows for evaluating their potency and quality. Standardizations of herbal-mineral formulations depend on a qualitative and quantitative study that uses physicochemical investigations also experimental research. The Central Research Institute in Arumbakkam, Chennai, and the Indian Institute of Technology in Chennai undertook physicochemical Analysis and elemental studies on synthetic herbal-mineral medication, respectively. (As well as FTIR, SEM, and ICP-OES)

Techniques used to standardize complicated preparations
1. The macroscopic-based techniques
2. The microscopically based processes
3. Physically based techniques
4. Chemical based ways
5. Biologically based schemes

The KMNC’s organoleptic characteristics:
These were assessed, which involved judging the formulation based on its Color, odor, taste, texture, and other attributes.

Physical-chemical estimation
The testing medicine has undergone physical-chemical Analysis as per WHO norms. Physical-chemical tests such as pH readings, losses during drying at 105 ±2 °C, and solubility tests According to the recommendations of the WHO [8, 9], measurements of totality ash, acid-insoluble ash, water-soluble ash, water-soluble extracts as well as alcohol-soluble extracts have all been made in our laboratory.

Measurement of pH:
A glass electrode and an appropriate pH meter are potentially used to ascertain the pH value. Five grams of the test specimen will be utilized for dissolving in 25 millilitres of distillate water and filtered; the resulting liquid will be tested for pH after standing for 30 minutes. [10, 11]

% of Loss after Drying
In a tarred glass container, 2 grams of the KMNC formulation were measured precisely. Using an oven, the crude medication was cooked to 105 ±2 °C for six hours to maintain a steady weight. Concerning the shade-dried material, the sample’s percentage moisture content was estimated.

The formula for percentage drying loss = (loss of sample weight/sample weight) x100

Heat therapy
A tiny amount containing KMNC had been added to dehydrate testing tubing, also slowly warmed. Carbonate is an option if substantial white vapors start to appear.

Flame examination:
A watch glass blended a small amount of KMNC with strong HCl to create a paste before being introduced to the Bunsen flame’s non-luminous region. A bluish-green blaze that appears denotes the existence of copper.

Ash analysis:
A mixture of KMNC with cobalt nitrate is stuck in ash-free filter paper before being placed in the Bunsen flame and fired for the ash test. The yellow flame’s appearance denotes the existence of sodium.

Estimation of Total Ash
In a silica bowl, the KMNC utilized for the overall ash assay was analyzed and heated to 400 °C in a furnace until the Color turned white, signifying no carbon was present. The proportion of general ash will be determined by utilizing the drug’s mass after air dehydration. The group of air-dried medications will be used to compute the percentage of total ashes.

Overall residue = (Debris obtained/ Crude medication consumed) x 100

Analysis of acid-insoluble ash
The entire KMNC sample’s ash will be heated for six minutes in 25 ml of dilute hydrochloric acid using an ash-free paper filter before being filtered. Any insoluble material retained on the filter paper
before it was burned in a muffle furnace to a con-
sistent weight was washed with hot water. The air-
drying drug was used as a reference to determine
the amount of acid-insoluble ash.

Acid-insoluble debris = (Ash collected / Raw
medicine consumed) / 100

Estimation of the amount of water-soluble ash

Five minutes were spent simmering one gram of
total ash in 25 ml of water; moreover, the ash-free
filter paper on which the insoluble material had
been gathered was then wetted with water and then
rinsed with water before being burned over 15 min-
utes with a maximum temperature of 1500 °C in
a muffle furnace. A filtrate is dried to assess the
amount of soluble ash.

Solubility test:

A small amount of the KMNC sample was added
to a dry tube for testing, and 2 ml of the solvent
was poured together. To get the results, the experi-
ment tube was firmly shaken for approximately one
minute. Separate analyses of the testing data were
done for solvents such as distillate water, C₂H₅OH,
C₆H₁₄, C₃H₈O₂, C₆H₅CH₃, C₆H₆, CHCl₃, C₈H₁₀, also
CCl₄

Estimation of alcohol-soluble Extracts:

In a sealed flask, the trail material had been macer-
ated using 100 ml of ethyl alcohol for twenty-four
hours; it was permitted to remain standing for eigh-
ten hours after six hours of vigorous shaking to
determine how much of the extract was soluble in
alcohol.

Filter immediately while taking steps to prevent sol-
vent loss; 25 ml from the filtrate must be evaporated
to dryness and then dried at 105 degrees Celsius to
a consistent weight. Determine the proportion of
extracts dissolved in alcohol in contrast to drugs that
the air-dried. Extract from an alcohol solution. =
(The importance of quotes/The weight of the sam-
ple obtained) x 100

Estimation of water-soluble extracts:

The recommended dosage is five grams of the air-
dried medicine. A closed container containing 100
ml of distilled water was macerated with coarsely
powdered KMNC for twenty-four hours while being
continuously shaken, and it was then permitted to
chill for 18 hours. 25 ml from the filtrate after the
screening, a solution was subsequently evaporated
in a small dish with a flat bottom and tar covering it.

Then, this piece was dried at 105 °C to an even
weight and weighed. The fraction of water-soluble
extracts was calculated about the medicines that had
been air-dried.

Preliminary Studies on Both Basic as Well as
Acid Radicals

Extract preparation

50 ml of purified water, 5 grams of properly weighed
KMNC, and a clean 250 ml beaker was added. The
mixture was completely boiled for 20 minutes, then
chilled and filtered before being blended with a one-
liter volumetric bottle filled with 100 ml of distil-
late water. A biochemical investigation was car-
ried out to determine the acidic and alkaline radi-
cals within the KMNC [12]. The findings are summa-
rized in Table 1. The analytical processes were only
carried out by licensed and authorized laboratories.

As a result, the results of KMNC employing various
analytical approaches show how precise KMNC is
to medically validate and assess the safety of the
Siddha herbal-mineral formulation KMNC; numer-
ous studies were conducted. Literature collec-
tions, pharmacological studies, and physicochemi-
ical investigations with elemental Analysis are all uti-
лизed to show its effectiveness.

Standardization of Siddha Preparation "KMNC"

Evaluation, Phytochemical Constituents

Given the makeup of the chemical components
found in the raw medicament, this is utilized to test
the medication.

Identifying alkaloids

Mayer’s investigation

After adding with the specimen, 2 ml containing
Mayer’s solutions to the test sample, a drab, white
residue that contained alkaloids was visible.

Checking for Coumarins

One milliliter of 10% sodium hydroxide was applied
to the test sample. The development of yellow Color
is a sign that coumarin is present.

A saponin test

Test for Foam: The tube was forcefully shaken after
adding 5 ml of water to the test sample. The pres-
ence of saponin is indicated by abundant lather
development.

Checking for Tannins

FeCl₃ Checking

After adding ferric chloride to the test sample, tan-
nins were detected by neither a dark blue nor
greenish-black color developing.

Glycoside screening

Bontrager testing

After being hydrolyzed for two hours using a bath
of water containing potent hydrochloric acid, the
test drug is filtered, and the hydrolysate is examined. Then, 3ml of chloroform is added to 2ml of filtered hydrolysate, which is stirred. Then the layer of chloroform is separated. Also, the mixture is subsequently added to a 10% ammonia solution. The pink hue denotes the existence of glycosides.

**Flavonoids test**

**Ammonia examination**

After adding around 5 ml of diluted ammonia solution to the trail sample, a few highly concentrated sulfuric acid droplets were added. The existence of a flavonoid is shown with the emergence of yellow Color.

**Detection of tri-terpenoids also steroids**

**A Lieberman-Burchard test**

A few drops of acetic anhydride were added to a chloroform liquid, which was well mixed. One ml of highly concentrated sulfuric acid was introduced from the testing tube’s faces. The testing tube’s top layer turned red, as the sulphuric acid layer fluorescence yellow as well as green. The presence of steroids was evident. A crimson ring that appears denotes the presence of tri-terpenoids.

**Trial for phenols**

**Lead acetate examination**

A lead acetate test was performed on the test material to determine the presence of phenols. A large, white precipitate indicates phenolic chemicals.

**Checking for cyanins**

**Anthocyanin testing**

1ml of 2N sodium hydroxide was added to the test sample and heated for 5min at 100°C. Anthocyanin is present when a bluish-green color develops.

**Trial for Betacyanin**

Testing for betacyanin involved adding 2 ml of HCl to the test sample and heating it for 5 minutes at 100 °C. Pink color development implies betacyanin is present.

**Investigation for carbohydrates**

**Benedict’s examination**

Benedict’s reagent is applied to the experiment’s sample in about 0.5 ml. The mixture is boiled in a bath of boiling water for two minutes. Precipitate with a distinctive color shows the presence of sugar.

**Testing for Proteins**

**Biuret method**

After adding a 5% solution of sodium hydroxide and a 1% solution of copper sulfate to the extract, the development of a violet-purple tint is a sign that proteins are present [13].

**Biochemical Investigation for Basic as Well as Acidic Radicals**

**The Analytical Research on Acidic Radicals Investigation**

**Investigation of carbonates**

Add approximately 1 ml of concentrated hydrogen chloride acetate after adding 1 ml to the test liquid. An indication that carbonates are present is rapid frothing.

**Assess chlorides**

2 ml containing the testing solution was combined with approximately 1 ml containing silver nitrate solution. A white precipitate’s appearance denotes the presence of chloride.

**Perform a sulfate test**

After one ml containing the testing specimen was obtained, effervescence was stopped by adding one ml of diluted H$_2$SO$_4$. A white precipitate’s appearance suggests the presence of sulfates.

**Perform a sulfide test**

With a little warming of the mixture, two ccs of liquid hydrogen chloride were combined with 1 ml from the pure test sample. Sulfides are present when colorless gas that smells like rotten eggs start to develop.

**Perform a phosphate test**

Take 2 ml of pure test liquid, treat the specimen sample with 2 ml of ammonium molybdate liquid, and add 2 ml of strong nitric acid. Phosphates are present when a residue of a dark yellow substance occurs.

**Fluoride as well as oxalate testing**

Add 2 ml of dilute acetic acid into the two ccs pure testing liquid as well as 2 ml of calcium chloride solution were added. A white precipitate arises when oxalate also fluoride are together.

**Examine for borates**

Sulphuric acid and 95% alcohol were added to 2 ml of the sterile test solution and then exposed to flames. The green flame’s appearance indicates the existence of Borates.

**Nitrate testing**

Add sulfuric acid after heating 0.5 ml containing the test solution using copper turning. Nitrates are present as reddish-brown gas that emerges.

**Lead testing**
Table 1: Description of KMNC’s Appearance

<table>
<thead>
<tr>
<th>S. No</th>
<th>Constraint</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Organoleptic uniqueness</td>
<td>Whitish grey nothing</td>
</tr>
<tr>
<td>1.</td>
<td>Shade</td>
<td>Fine</td>
</tr>
<tr>
<td>2.</td>
<td>Smell</td>
<td>SpongyBitter</td>
</tr>
<tr>
<td></td>
<td>Contact</td>
<td>Ultra-fine Powder</td>
</tr>
<tr>
<td>3.</td>
<td>Flavor</td>
<td>Flowing freely</td>
</tr>
<tr>
<td></td>
<td>Look</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Flow characteristics</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>pH</td>
<td>7.8</td>
</tr>
<tr>
<td>6.</td>
<td>Percentage of losses after 105°C</td>
<td>0.3±0.05568</td>
</tr>
<tr>
<td></td>
<td>drying</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Percentage of overall ashes</td>
<td>96.43±1.901</td>
</tr>
<tr>
<td>8.</td>
<td>Percentage of acid-insoluble debris</td>
<td>0.4167±0.07024</td>
</tr>
<tr>
<td>9.</td>
<td>Percentage of water-soluble extracts</td>
<td>4.167±0.5132</td>
</tr>
<tr>
<td>10.</td>
<td>Percentage of alcohol-soluble extracts</td>
<td>0.18±0.03</td>
</tr>
<tr>
<td>11.</td>
<td>Solubility</td>
<td>Optimistic with C2H5OH, H2O, and DMSO</td>
</tr>
<tr>
<td>12.</td>
<td>Uniformity</td>
<td>Excellent one</td>
</tr>
<tr>
<td>13.</td>
<td>Distillate water</td>
<td>Minimally solvable</td>
</tr>
<tr>
<td>14.</td>
<td>C2H5OH</td>
<td>Minimally solvable</td>
</tr>
<tr>
<td>15.</td>
<td>CH3OH</td>
<td>Minimally solvable</td>
</tr>
<tr>
<td>16.</td>
<td>C3H8O2</td>
<td>Not soluble</td>
</tr>
<tr>
<td>17.</td>
<td>C6H14</td>
<td>Not soluble</td>
</tr>
<tr>
<td>18.</td>
<td>C6H5CH3</td>
<td>Not soluble</td>
</tr>
<tr>
<td>19.</td>
<td>CCl4</td>
<td>Solvable</td>
</tr>
<tr>
<td>20.</td>
<td>CHCl3</td>
<td>Solvable</td>
</tr>
<tr>
<td>21.</td>
<td>C8H10</td>
<td>Not soluble</td>
</tr>
<tr>
<td>22.</td>
<td>Sensation of feel</td>
<td>Okay</td>
</tr>
<tr>
<td>23.</td>
<td>Specific gravity</td>
<td>0.929</td>
</tr>
<tr>
<td>24.</td>
<td>Sensitivity to hotness up</td>
<td>Optimistic</td>
</tr>
<tr>
<td>25.</td>
<td>Flare analysis</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>26.</td>
<td>Ashes investigation</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>27.</td>
<td>element dimension</td>
<td>Perfectly clears 120 no screen</td>
</tr>
</tbody>
</table>

Table 2: Chendoorum Confirmatory Specifications

<table>
<thead>
<tr>
<th>Constraint</th>
<th>Monitoring for KMNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fineness</td>
<td>Confirms the fineness criterion in light of the particle dimension study, also the flow characteristics of the sample confirms</td>
</tr>
<tr>
<td>Water float</td>
<td>Validates the assessment</td>
</tr>
<tr>
<td>Smokeless</td>
<td>Validates the assessment</td>
</tr>
<tr>
<td>Tasteless</td>
<td>Verifies the assessment</td>
</tr>
<tr>
<td>Lusterless</td>
<td>Verifies the assessment</td>
</tr>
</tbody>
</table>
### Table 3: Effects of basic radicals

<table>
<thead>
<tr>
<th>S. No</th>
<th>Constraints</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Detection of Sulfate</td>
<td>Optimistic</td>
</tr>
<tr>
<td>2</td>
<td>Detection on Chloride</td>
<td>Optimistic</td>
</tr>
<tr>
<td>3</td>
<td>Detection for Phosphate</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>4</td>
<td>Detection of Carbonate</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>5</td>
<td>Detection of Fluoride and Oxalate</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>6</td>
<td>Detection for Nitrate</td>
<td>Pessimistic</td>
</tr>
</tbody>
</table>

### Table 4: Acidity Radicals’ Effects

<table>
<thead>
<tr>
<th>S. No</th>
<th>Constraints</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Screening of K</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>2</td>
<td>Checking for Ca</td>
<td>Optimistic</td>
</tr>
<tr>
<td>3</td>
<td>Screening of Mg</td>
<td>Optimistic</td>
</tr>
<tr>
<td>4</td>
<td>Detection of Ammonium</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>5</td>
<td>Detection of Na</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>6</td>
<td>Screening of Iron (ferrous)</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>7</td>
<td>Screening on Zn</td>
<td>Optimistic</td>
</tr>
<tr>
<td>8</td>
<td>Detection of Al</td>
<td>Optimistic</td>
</tr>
<tr>
<td>9</td>
<td>Screening of Pb</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>10</td>
<td>Detection for Copper</td>
<td>Pessimistic</td>
</tr>
<tr>
<td>11</td>
<td>Detection of Hg</td>
<td>Optimistic</td>
</tr>
<tr>
<td>12</td>
<td>Detection on As</td>
<td>Pessimistic</td>
</tr>
</tbody>
</table>

### Table 5: Outcomes of Biochemical Investigation on KMNC

<table>
<thead>
<tr>
<th>S. No</th>
<th>Constraints</th>
<th>Observation</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Examine for Sulphates</td>
<td>Whitish precipitation is present.</td>
<td>Optimistic</td>
</tr>
<tr>
<td>2.</td>
<td>Examine for Nitrates</td>
<td>Existence of a hue of reddish-brown</td>
<td>Optimistic</td>
</tr>
<tr>
<td>3.</td>
<td>Examine for Carbonates</td>
<td>Rapid effervescence’s presence</td>
<td>Optimistic</td>
</tr>
<tr>
<td>4.</td>
<td>Examine for mercury</td>
<td>Yellow precipitation is present</td>
<td>Optimistic</td>
</tr>
</tbody>
</table>

### Table 6: An extensive heavy metal ions assessment

<table>
<thead>
<tr>
<th>Heavy metallic element</th>
<th>Maximal Absorption in nm</th>
<th>Outcome assay</th>
<th>The maximum value in ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pb</td>
<td>217.0</td>
<td>BDL</td>
<td>10.0</td>
</tr>
<tr>
<td>As</td>
<td>193.7</td>
<td>BDL</td>
<td>3.0</td>
</tr>
<tr>
<td>Cd</td>
<td>228.8</td>
<td>BDL</td>
<td>0.3</td>
</tr>
<tr>
<td>Hg</td>
<td>253.7</td>
<td>0.52 ppm</td>
<td>1.0</td>
</tr>
<tr>
<td>Frequency, cm$^{-1}$</td>
<td>Operational cluster</td>
<td>Raman Bond</td>
<td></td>
</tr>
<tr>
<td>---------------------</td>
<td>----------------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>3616.09</td>
<td>O-H</td>
<td>Feeble</td>
<td></td>
</tr>
<tr>
<td>3097.39</td>
<td>=C-H</td>
<td>Powerful</td>
<td></td>
</tr>
<tr>
<td>2200.71</td>
<td>C=C</td>
<td>Powerful</td>
<td></td>
</tr>
<tr>
<td>940.01</td>
<td>C-O-C</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>814.89</td>
<td>C-O-C</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>371.57</td>
<td>(CC)Aliphaticseries</td>
<td>Powerful</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 8: ICP-MS analysis of KMNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>S.No</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
<tr>
<td>4.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 9: XRD analysis of KMNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
</tr>
</tbody>
</table>

Figure 1: FT-IR spectra of KMNC

The specimen solution of 1 ml and 2 ml containing a potassium chromate liquid was mixed. Lead is present when a yellow precipitate forms, which is a symptom.

**A Research Analysis on a Test For Basic Radicals**

**Arsenic testing**

Two milliliters of a 10% (2N) sodium hydroxide (NaOH) solution were added to five milliliters of the test solution. Arsenic is present when a residue that is brownish-red forms.

**Mercury testing**

Two milliliters of a 10% (2N) sodium hydroxide (NaOH) solution were added to one milliliter of the test solution. Mercury can be detected by the yellow precipitate that forms when it does.

**Assess Copper**

One ml containing the test’s solution was mixed with an ammonium hydroxide (NH4OH) resolution.

**Check for Ferrous**

1 ml pure, the testing liquids with approximately 2
Table 10: Outcomes of FT-IR study

<table>
<thead>
<tr>
<th>S. No</th>
<th>Absorption tip (cm⁻¹)</th>
<th>Stretch</th>
<th>Functional cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3853</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>2</td>
<td>3733</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>3</td>
<td>3696</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>4</td>
<td>3585</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>5</td>
<td>3561</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>6</td>
<td>3543</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>7</td>
<td>3521</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>8</td>
<td>3497</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>9</td>
<td>3476</td>
<td>N-H</td>
<td>Amides, 1º, 2ºamines,</td>
</tr>
<tr>
<td>10</td>
<td>3441</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>11</td>
<td>3417</td>
<td>H, O-H</td>
<td>Phenols, alcohols</td>
</tr>
<tr>
<td>12</td>
<td>2292</td>
<td>C-H, H-C=O</td>
<td>Aldehydes</td>
</tr>
<tr>
<td>13</td>
<td>1826</td>
<td>C=O</td>
<td>Ketones, α-unsaturatedaldehydes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1868</td>
<td>-C=C</td>
<td>Alkenes</td>
</tr>
<tr>
<td>15</td>
<td>1826</td>
<td>C=O</td>
<td>Carbonyl(Common)</td>
</tr>
<tr>
<td>16</td>
<td>1792</td>
<td>C=O</td>
<td>Carbonyl(Common)</td>
</tr>
<tr>
<td>17</td>
<td>1769</td>
<td>C=O</td>
<td>Carbonyl(Common)</td>
</tr>
<tr>
<td>18</td>
<td>1715</td>
<td>C-O</td>
<td>Ketones, α-unsaturatedaldehydes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>1697</td>
<td>C-O</td>
<td>Ketones, α-unsaturatedaldehydes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>1683</td>
<td>-C=C</td>
<td>Alkene</td>
</tr>
<tr>
<td>21</td>
<td>1662</td>
<td>-C=C</td>
<td>Alkene</td>
</tr>
<tr>
<td>22</td>
<td>1636</td>
<td>N-H</td>
<td>1ºamine</td>
</tr>
<tr>
<td>23</td>
<td>1617</td>
<td>N-H</td>
<td>1ºamine</td>
</tr>
<tr>
<td>24</td>
<td>1552</td>
<td>N</td>
<td>Nitro-complexes</td>
</tr>
<tr>
<td>25</td>
<td>1535</td>
<td>N</td>
<td>Nitro-complexes</td>
</tr>
<tr>
<td>26</td>
<td>1517</td>
<td>N</td>
<td>Nitro-complexes</td>
</tr>
<tr>
<td>27</td>
<td>1508</td>
<td>N</td>
<td>Nitro-complexes</td>
</tr>
<tr>
<td>28</td>
<td>1472</td>
<td>C-H</td>
<td>Alkanes</td>
</tr>
<tr>
<td>29</td>
<td>1336</td>
<td>C-N</td>
<td>Aromatic amines</td>
</tr>
</tbody>
</table>

ml pure potassium ferrocyanide were mixed. The precipitate turning blue shows the presence of ferric. **Check for Ferric**

1 ml pure, the testing liquids with approximately 2 ml pure potassium ferric cyanide were mixed. Iron is present when a blue precipitate forms, which is an indication of it.

**Check for zinc**

Until an indication is visible, add dropwise, add 2 ml of sodium hydroxide (NaOH) to 1 ml of the test solution. Zinc is present when a residue that is white forms.

**Detect silver**

One ml containing the practical solution and one containing concentrated HCL were added. Silver can be detected when a curdy white precipitate forms.

**Magnesium test**

Until an indication is visible, dropwise, add 2 ml of sodium hydroxide (NaOH) and 1 ml of the test liquid.
Table 11: The component in the oxide type

<table>
<thead>
<tr>
<th>A formula</th>
<th>Constitute (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulfur</td>
<td>99.10</td>
</tr>
<tr>
<td>Chlorine</td>
<td>0.43</td>
</tr>
<tr>
<td>Sodium</td>
<td>0.27</td>
</tr>
<tr>
<td>Potassium</td>
<td>0.10</td>
</tr>
<tr>
<td>Magnesium</td>
<td>0.04</td>
</tr>
<tr>
<td>Silica</td>
<td>0.04</td>
</tr>
<tr>
<td>Ferrous</td>
<td>0.04</td>
</tr>
<tr>
<td>Calcium</td>
<td>0.03</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.02</td>
</tr>
<tr>
<td>Aluminum</td>
<td>0.02</td>
</tr>
<tr>
<td>Copper</td>
<td>92 ppm</td>
</tr>
<tr>
<td>Lead</td>
<td>60 ppm</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>23 ppm</td>
</tr>
</tbody>
</table>

Table 12: The component type

<table>
<thead>
<tr>
<th>A formula</th>
<th>Constitute (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO₃</td>
<td>98.73</td>
</tr>
<tr>
<td>Cl</td>
<td>0.43</td>
</tr>
<tr>
<td>Na₂O</td>
<td>0.36</td>
</tr>
<tr>
<td>K₂O</td>
<td>0.12</td>
</tr>
<tr>
<td>SiO₂</td>
<td>0.09</td>
</tr>
<tr>
<td>MgO</td>
<td>0.07</td>
</tr>
<tr>
<td>P₂O₅</td>
<td>0.06</td>
</tr>
<tr>
<td>Fe₂O₃</td>
<td>0.05</td>
</tr>
<tr>
<td>Al₂O₃</td>
<td>0.03</td>
</tr>
<tr>
<td>CaO</td>
<td>0.05</td>
</tr>
<tr>
<td>CuO</td>
<td>0.01</td>
</tr>
<tr>
<td>Pd</td>
<td>50 ppm</td>
</tr>
<tr>
<td>MoO₃</td>
<td>34 ppm</td>
</tr>
</tbody>
</table>

Figure 3: SEM image of KMNC

Magnesium is present when a residue of white color forms [14].

Instrumental Research on the Complexity
Fourier Transform in the field of Infrared (FT-IR)

FTIR is a responsive practice, especially for characterizing some inorganic materials and detecting organic molecules in various functions. Functional cluster detection can be accomplished with FTIR, a powerful analytical tool [15].

Spectrophotometric assays are frequently used to determine the number of polymorphic forms and identify chemical compounds. The test methods are appropriate for materials that absorb infrared emission. The IR absorption spectra of a material can be used as definitive proof of its identity when compared to the spectrum acquired concurrently for the equivalent reference standard or reference substance.

Tamil Nadu Test House Vanakaram in Chennai, India, registered the FT-IR spectrum. The Perkin Elmer spectra One Fourier Transforms Infrared (FTIR) Spectrometer was used to acquire the FT-IR spectra for KMNC within the potassium bromide (KBr) matrices at a scan speed of 5 scans every minute with an accuracy of 4 cm⁻¹ within a wave number section 450-4000cm⁻¹.

FT-IR investigation is employed to scan solids, liquids, and gases qualitatively to combine organic and inorganic specimens, identify unknown substances, and screen impurities, formulations, and pharmaceuticals.

The scanning electron microscope (SEM)

SEM is a particularly efficient tool for failure analysis and microanalysis of solid inorganic substances. High-magnification scanning electron microscopy creates high-resolution images and accurately assesses incredibly minute features, objects, and spatial differences in attributes such as chemical categorization, texture, and substance position [16]. The SEM can also examine specific point locations on the specimen. This technique works particularly well for figuring out chemical compositions and structures of crystals with crystalline positions in a manner that is neither qualitative nor semi-quantitative (Figures 1 and 2) [17].

A two-dimensional icon is created by the signals produced by the SEM analysis, which also provides information about the sample, such as morphology (texture) of the skin, chemical makeup (when combined with EDS), and rotation of the sample’s constituent materials.

Regarding qualitative information, estimate the components within or beneath the specimen’s topmost layer. Members must be evaluated for semi-quantitative outcomes. Find coatings on metal and foreign compounds that are not organic in origin.

Qualitative also semi-quantitative outcomes of SEM evaluation with EDS at a range of 5 x to 300,000, the largest sample sizes are magnified to a maximum of 200 mm (7.87 in) in diameter 80 mm (3.14 in) in altitude. Solid inorganic substances, including metals also minerals, were the focus of the Analysis.

The following specifications of SEM instrument are employed: Make: Model S4 PIONEER, Bruke, Model of the instrument: SEM-Hitachi Range of Scan: S-3400n, magnification: at least 12 times larger and up to one million times larger.

ICP-MS (Inductively-Coupled Plasma Mass Spectrometry)

Evaluation of Inorganic with Trace Metal Substances

The ICP-MS method is frequently employed to assess minute quantities of various inorganic components. The ICP-MS allows for the detection and quantification of the constituents’ atomic mass arrays, which range from 7 to 250 and include lithium and uranium. The typical detection limits can vary depending on the situation, from parts per billion (ppb) to parts per trillion (ppt). Several elements can be detected, identified, also quantified utilizing the Perkin Elmer ELAN 6000 ICP-MS and the ICP-MS analytical procedures provided by LPD Lab Services [18].

Applications for the XRD (X-ray powder scattering) technique

The quick analytical technique is X-ray powder scattering and determines the crystalline state or solids in most cases. Additionally, it can provide information regarding the unit cell measurements. The mean bulk composition of the substance under Analysis is established after it has been finely processed and homogenized. Recognition using unidentified crystals is a common use of powdered X-ray scattering. The recognition of unidentified solids is helpful for investigation in geology, ecological science, material science, and natural science. Applications include categorizing crystalline substances, recognizing fine-granule minerals like clays, visually difficult-to-distinguish blended layered ceramics, and determining single-cell measurements. XRD may be employed to analyze the modal quantities of materials quantitatively and to determine crystalline structures using Rietveld purification. Rigaku Smart Laboratory x-ray diffractometer is used in this work. (Surface and Optical Analysis – The University of Akron) [19].

Atomic Absorption Spectrometry (Aas) Analysis of Heavy Metals

---

**Methodology**

A popular and trustworthy method for finding metals also metalloids in ecological materials is atomic absorption spectrometry (AAS). The sample’s heavy metallic elements were counted using AAS version AA 240. To determine how much heavy metal—such as Cd, Pb, As, also Hg—has been included in the examination material. ZEEnit series (novAA 800 Series) with Zeeman background AAS is employed in this work.

**Specimen Digestive process**

One mole/liter of HCl was used to digest the experimental specimen to ascertain the levels of arsenic with mercury. The material was digested using one mol/L of lead with cadmium measurement-grade HNO\(_3\). As and Hg (Specimen containing 100 ppm with one mol/L contains HCl, Cd, also Pb) and HNO\(_3\) (100 ppm sample in 1 mol/lit HNO\(_3\)) are the ingredients for the standard preparation [20].

**Outcomes**

**Physical-Chemical Assessment**

**Biochemical Investigation on KMNC**

**Atomic absorption spectrometry (AAS) for heavy metal investigation**

The current study demonstrates that experimental medicine contains considerable amounts of metals like Pb, As, Hg, also Cd. Table 6 is a summary of the outcome.

**BDL–Below Detection Limit**

**Physical and Organoleptic characteristics**

The sample drug’s organoleptic characteristics were assessed following the protocol. The Color, texture, particle size, and other attributes of 3.5gm of the KMNC were examined under bright sunlight using the naked eye. The outcome was then noted.

**Physic-Chemical Investigation Discussion**

**Comments on soluble capacity**

The primary determinant affecting a medicinal substance’s bioavailability is its solubility.

It was useful to recognize the drug’s form and how it was processed to create its dose form.

Poor solubility and inadequate permeability are the greatest common reasons for poor oral bioavailability [21].

KMNC is somewhat soluble in the little solvents and soluble in most solvents. It indirectly demonstrates the effectiveness of its stomach solubility and raises its bioavailability.

**Loss on drying/Gain from drying**

The drug’s total volatile substance and moisture (water) content are determined by loss on drying.

The amount of moisture affects a drug’s stability and shelf life. Increased humidity can harm the active component.

Low moisture substance allows for better the medicine’s durability as well as shelf lifespan.

The drug’s low drying loss results in a lower humidity level, making it acceptable for making medicines.

**Values of Ash (Total Ash Value)**

The experimental drug’s low total ashes value suggests that it comprises plant-based organic derivatives. It doesn’t go through the calcination process.

**Acid-insoluble ash**

If the acid-insoluble number is lower, the medicine’s quality will be higher (100). The medication guarantees a tiny amount of acid-insoluble ashes means that no sand, dust, or stones were present in the preparation.

**Water-soluble ash**

Reduced water-soluble debris values (5.40%) suggest simple diffusion and osmosis mechanism facilitation.

**Biochemical Evaluation**

According to the biochemical Analysis, the biochemical Analysis, Ca, Al, Zn, and Hg are found in the basic radicals of KMNC. Sulfate also chloride is present, according to the biochemical study of the acid radical of KMNC.

**Interpretation**

These radicals are present, which aids KMNC’s therapeutic action.

Zinc is necessary for blood coagulation, wound healing, and immunological function.

Mercury has cytotoxic properties that inhibit the growth of tumors and aid in the destruction of cancer cells.

**Standardization as literature before the Buddha**

KMNC signifies fine and white. KMNC is primarily white and ivory. KMNC was ivory or a pale yellowish white. It exhibits KMNC’s ideal Color. If there is no gleaming, then there are no metals present.

**Float on Water**

The KMNC floats on the water’s surface rather than sinking. It shows how lightweight KMNC is. KMNC can do so because it has a lower specific gravity than water, allowing it to move more freely. It signifies
how light the medication is; hence, it has a property similar to Chendhooram.

**Fingerprint Test**

It infringed on the fingertip lines. It attested to the KMNC’s high quality. KMNC impacted the finger’s lines during the fingerprint examination. It implies that the small particles are microscopic and fine.

**Luster**

The absence of sparkling particles in the medicine indicates that it does not include unaltered materials such as metals or other dangerous compounds. The medication was, therefore, appropriately made. The KMNC lacked sheen. It happens due to the specific metallic characteristics of the raw materials altering during cremation. It suggests that it was expertly built.

**Taste**

Due to the sulfur content, it had no flavor and caused only moderate irritation. KMNC lacks a recognizable flavor. It happens due to the specific metallic characteristics of the raw materials altering during cremation. [22]

**Solubility**

One of the key factors in achieving the desired KMNC drug concentration in systemic circulation and the necessary pharmacological response is solubility. However, KMNC indirectly demonstrates its effectiveness of solubility in the stomach by increasing bioavailability. It is barely dissolved in a few other chemical solvents and completely dissolved in the main solvent.

It was useful to recognize the drug’s form and how it was processed to create its dose form. Poor solubility and inadequate permeability are the greatest common reasons for poor oral bioavailability [20]. KMNC is somewhat soluble in the little solvents and soluble in most solvents. It indirectly demonstrates the effectiveness of its stomach solubility and raises its bioavailability.

**pH**

The pH value of KMNC is acidic. The resulting pH affects the activity of enzymes by preserving their internal condition and controlling equilibrium. It is a crucial component in drug absorption as well.

**Specific gravity:**

The experimental medicine KMNC exhibits a specific gravity lower than water. It demonstrates how Absorption works.

**Gain from drying**

RP drug’s total volatile substance and moisture (water) content are determined by loss on drying. The amount of moisture affects a KMNC drug’s stability and shelf life. Increased humidity in KMNC can harm the active component in KMNC. Low moisture substance allows for better the RP medicine’s durability as well as shelf lifespan. KMNC drug’s low drying loss results in lower humidity and the highest level of microbiological stability, making it acceptable for making medicines.

**The overall value of the ashes**

Cinder is absent in KMNC, indicating a high proportion of plant-based organic derivatives, including Na, Ca, and K. These chemical molecules cause the therapeutic effects of KMNC and mineral supplementations.

**Acid-insoluble ash**

KMNC drug quality will be better if the acid-insoluble ash value is reduced. Because the amount of acid-insoluble ash in this medication is minimal (less than 1%), it may be assumed that no sand, dust, or stones were included in its production.

**Water soluble ash**

Reduced water-solvable debris values (less than 1%) suggest promoting diffusion and facilitating the osmosis mechanism. This nature could facilitate greater Absorption.

KMNC has a lower specific gravity than water. It shows how lightweight the medication is. The trial drug’s mild irritation was caused by its pH. The drug’s adjuvants, jaggery, decrease the discomfort and foul smell. This adjuvant reduces the acidity of KMNC as a result. Mildly acidic drugs are absorbed in the stomach's acidity surroundings per pharmaco-kinetics. KMNC has incredibly small particles, according to a particle size examination. For the sieve dimension no. 120, the diameter of the mesh is 125 nm.

**Analysis**

Table 1 demonstrates that high organic materials led to a very high overall ash value. KMNC’s physicochemical examination revealed Losses after a drying value of 0.3 ± 0.05568%, indicating that the medicine had low humidity content. Increasing humidity level is the cause of a drug’s instability also shorter shelf life. Due to its careful preparation, KMNC achieved optimum stability and longer shelf life. This previous finding justifies the Chendhooram’s100-year shelf life referenced in Siddha literature.

**Initial studies on both basic as well as acidity radicals**

According to the preliminary chemical Analysis, the experimental medicine KMNC contains sulfate, chlo-
ride, phosphate, Ca, K, Mg, and Fe.

**FTIR**

The outcome indicates in Table 3 also Fig 9 that KMNC contains functional groups and inorganic chemicals. For clarifying their structures and proving the existence of the active molecules that underlie the curative efficacy in Siddha medications, biomolecules’ available categories can be recognized using FT-IR [23].

Through their stretch and bend, which are responsible for their functional activity, sophisticated instrumental Analysis, like FTIR, reveals the existence of functional groups. The Siddha herbal remedy KMNC was put through several experiments to validate its efficacy and safety through a proper standardization approach, and the findings showed its potency and effectiveness. The conclusion was drawn after carefully examining all the previous investigations. The chemical fingerprint is demonstrated by a wavenumber between 1500 cm$^{-1}$ and 400 cm$^{-1}$.

According to the earlier finding, "KMNC" contains functional groups, including primary and secondary alcohol, phenols, alkanes, and alkyl halides. They might be in charge of KMNC’s anticancer properties in cancer.

**Phenols**

Phenols and flavonoids possess several biological activities, including antiulcer, antioxidant, cytotoxic, antitumor, anti-inflammatory, antispasmodic, and antidepressant properties.

Phenols are currently gaining attention for their potential anti-oxidative and anti-carcinoma properties. [24]

**Alcohol**

The CMC’s OH group has a better capability for inhibiting the growth of microbes.

**Alkyl halide**

The abundance of Low-molecular-mass alkyl halides, which have the potential to cause minor cancer, serves as proof for the electrophilic theory of carcinogenesis [25].

**Alkanes**

An alkanes derivative has anticancer properties. Siddha’s literature suggests that this medicine is appropriate for disorders like cervical cancer and other conditions because of the reported frequencies [26]. Therefore, the author expects that the results of this investigation will be beneficial in future research on “KMNC.”

**Acid carboxylic**

The novel anticancer compound benzene-poly-carboxylic acid complex (BP-CI) targets human cellular carcinoma. One such example is the omega-3 fatty acid docosahexaenoic acid (DHA). Having six (hexa-) cis double bonds also 22-carbon linkage (docos is Greek for 22), it has the structure of a carboxylic acid (-oic acid). DHA was discovered to slow the development of human colon cancer cells in mice. The reduction in the cell growth regulator ultimately gave rise to DHA’s cytotoxic effects [27].

**Discussion in FT-IR**

The instrument analysis was finished using Fourier Transforms Infra-Red Spectroscopy (FT-IR). The test substance contained twelve tips. These were the groups of functional identified within the KMNC drug being studied. Alcohol, alkanes, alkenes, phenols, alkyl halides, aromatics, carboxyl, and nitrile groups are present and reflect the maximum amount, as demonstrated in Table 3. The FTIR investigation of KMNC yielded spectra that show molecular Absorption and transmission. This produces molecular fingerprints of a substance. A functional group controls how many compounds are in the specimen by determining how many are present. These functional groups might be responsible for the drug’s therapeutic effects. [28]

**Analysis of XRF (X-RAY Fluorescence spectroscopy)**

**XRF outcome of KMNC**

According to the XRF results, sulphur trioxide is present in 98.7%. The majority of the elements in KMNC are in oxide form. The calcined process is to blame

**SEM (Energy Dispersive X-ray Investigation Scanning Electron Microscope)**

The sample’s nanoparticle and microparticle sizes are seen in the SEM image. A particle dimension ranges from 60 nm - 172 nm. Because of their relatively tiny dimensions, nanoparticles may reach tissues and interact with biological substances. The main characteristics that nanoparticles can benefit KMNC is that it spontaneously grows and has nanoparticles to hasten medicine activity at the desired spot. The image below, which was created using a 10 K X magnification and a 1 m aperture, displays maximum depth focus. Figures 3 and 4 displays nanoparticles in a 1 $\mu$m SEM picture.

The SEM investigation described above demonstrates microscopic resolution at 1, 20 $\mu$m array. The presence of diverse compounds in the sample is the cause of the change in morphology that is seen in the micrograph. A drug must be classified as a nanomedicine if it contains 100-nm-sized nanopar-
The medication produced using the standard Siddha-SOP sublimation technique has carbon connections with aliphatic chains $H_2$, $C$, also $O_2$.

Ionic, covalent, also coordinated covalent links (C-O-C link chain and C=C link chain) are possible for these bonds.

The sublimation process transforms a heterogeneous substance into a homogenous material and produces fresh complicated substances with a wide range of linkages.

Electronegativity is a metric for how likely a single atom is to capture a pair of bonding electrons.

One atom’s linking couple of electrons is drawn toward the other end of the atom’s connection.

The link becomes more ionic as the electronegative difference between the dual atoms engaged increases.

KMNC’s electronegativity and nucleophilicity cause unstable radicals to be drawn into these electron skies, and certain fresh bonding prevents metabolites from harming and detoxifying cells. These properties also support the electron transportation chain, which maintains proper cell metabolism and promises an antioxidant asset.

Important characteristics of antioxidants: Protein, lipids, also DNA damage brought on by oxidative stress has caused cell damage. It might also affect pathways of signaling that are redox-sensitive to apoptosis-related alterations. Since they may be helpful in both the prevention and management of diseases where cellular oxidative damage has been associated, antioxidants have become the focus of numerous studies and considerable interest in preserving comestibles.

**ICP-MS analysis of KMNC**

**ICP-MS comments**

Following the findings, hazardous metals arsenic and mercury concentrations are also within WHO-approved ranges. Both Pb also Cd is at or below the permitted values. This ensures the medication is safe during therapy, in addition to increasing its efficiency in treating disorders without endangering the body’s cells. In addition to toxicological research, the WHO recommendations report uses heavy metal analysis using ICP-MS to verify the drug’s safety.

**XRD(X-ray scattering)**

**Comments**

The structure of the crystal is greatly affected by the process of manufacturing. The particles’ size, shape, and composition emphasize the medication’s potency. The nanoparticles may improve the bioabsorption of the medicine.

After being burned, the XRD model of KMNC exhibits a good crystalline structure. After XRD analysis, the principal diffraction peaks are determined. According to KMNC, an association with organic molecules presumably plays a significant function in the nanocrystalline range (26–31 nm), rendering it friendly and nontoxic at its therapeutic levels. Other ingredients in KMNC serve as extra supplements and may aid in increasing the formulation’s effectiveness [29].

**DISCUSSION**

Ca, Hg, As, Na, Ammonium, also Znis are found in KMNC’s fundamental, radical biochemical Analysis (Tables 2, 4 and 5).

Sulfates, as well as chloride, are present in the KMNC biochemical assay for acidity radicals (Tables 7, 8 and 9).

The existence of the above radicals enhances the therapeutic potential of KMNC (Tables 10, 11 and 12).

Calcium: 1100 IU vitamin D3 and supplemented calcium doses of 1400–1500 mg were observed to minimize the relative threat of aggregated malignancies in a randomized regulated experiment.

Ammonium: Additionally, ammonia produced by the catabolism of amino acids during glucose deficiency can promote autophagy. This ammonia-stimulated autophagy also aids in the survival of cell lines, making it a potentially effective therapeutic objective in the fight against cancer. Sodium: Sodium kills cancer cells by cytotoxic means.

Zinc: The immune system, wound healing, and blood clotting depend on zinc. According to several research, zinc inhibits the development of carcinoma lines cell in culture.

Mercury: Mercury perchloride was first used as a surgical antiseptic solution around rectal operations. In reconstructive carcinoma operations, the methods of Goligher et al. established colon also rectum washing. During kidney-related operations, mercury perchloride liquid was used as a cancer-fighting medicine. This leads to the conclusion that mercury perchloride acts as an effective cancer-prevention medication when utilized during major bowel operations.

Arsenic: Numerous arsenic substances were used
for therapeutics in the eighteenth and nineteenth centuries. During the past five hundred years, trioxide of arsenic was employed in a wide range of therapeutic approaches, with cancer treatment being the most popular. This drug was given FDA approval in 2000 to treat severe promyelocytic leukemia, which was sensitive to ATRA.

Sulfate: A chemical substance called sulfate of hydrazine has been investigated as a cancer therapy. The substance sulfate has beneficial effects on cancer.

Chloride: Against cells with cancer, chloride exerts cytotoxic properties.

**Nanoparticle benefits**

Improve hydrophobic medication solubility, extend the time of circulation, limit uptake that is not specific, increase the drug’s therapeutic impact, reduce toxicity and adverse effects, avoid negative side effects, increase penetration inside cells, increase bioavailability and improve stability, limit uptake that is not specific, increase the drug’s therapeutic impact, reduce toxicity and adverse effects, avoid negative side effects, increase penetration inside cells, increase bioavailability and improve stability, target cancer specifically, nanoparticles are included in the test medication KMNC, drugs using nanoparticles have improved bioavailability and are easier to absorb, nanotechnology offers a promising path from cancer management to cancer eradication since it acts on the cellular level and has anticancer activity, the nanoparticles demonstrate that medicine can quickly and to cure diseases and increase the effectiveness of treatment, easily penetrate cells at the molecular level, and the presence of spherical particles with an aggregated morphology is seen in the SEM pictures of KMNC. The particles’ measured sizes include 96nm, 120nm, and 134nm. The dimension of particles is roughly within the nanometer range. The experimental medication KMNC is nanomedicine. Therefore, the drug will have high bioavailability. The medicine will also be powerful, even at smaller doses. Today’s research findings show that the most recent cancer treatments depend on immunotherapy, particularly monotherapy, in addition to chemotherapy and brachytherapy. In the present world, this nanomedicine will aid in creating miraculous cancer treatments.

**Conflicts of Interest**

There are certainly no conflicting activities.

**Funding Support**

No funding support for this study.

**REFERENCES**


**Copyright:** This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.


© 2024 Pharma Springs Publication.