I. INTRODUCTION

In order to feel alive, we need to breathe. The breathing process occurs in every instant of life but we rarely realize the importance of respiratory system of body. Although we don’t even notice the process of breathing in our routine life, sometimes it becomes a complicated task to breathe. This is the condition where respiratory system of body is defected. Millions of people are suffering from different kind of respiratory tract disorders like common cold, cough, asthma etc. in every instant of life but we rarely realize. Hallataka oil with milk has been elaborated to cure respiratory disorders, as it is said that there is no any kapha dosha vikruti which cannot be cured by bhallataka. This plant is also known as geeru beeja locally and marking nut in english. It is easily available, cost effective and has many etho-medicinal uses. Semecarpus anacardium Linn. is a botanical name of Bhallataka belongs to family Anacaradeae. It contains phytoconstituents like bhilawanol, bioflavonoids, phenolic compounds etc. There are several studies, which have been conducted for anti-inflammatory, antimicrobial, anti-oxidant, anti-reproductive and anticancerous activities of bhallataka. Current review aims to study the anti-inflammatory and antimicrobial action of bhallataka w.r.t. to respiratory tract disorders as well as its ayurvedic aspect to cure kapha dosha vikruti.

Understanding Bhallataka

It is medium sized deciduous tree. 15-25m in height. Bark is grey in colour with irregular flakes over it. On incising an irritant secretion exudes from bark. Leaves are simple, alternate, rounded at the apex, glabrous above and pubescent beneath. Flowers are greenish white in colour. Fruit is 2-5cm long, ovoid, fleshy, orange red in colour with cup shaped upper portion. The plant is easily recognized by large leaves excluding from bark, on exposure it turns to black.\(^1\)

It contains phytoconstituents like bhilawanol, bioflavonoids, phenolic compounds and sterols.\(^2\) Bhilawanol from fruits was shown to be mixture of cis and trans isomers of ursuhenol. Kernel of the nut contains a small quantity of sweet oil. The kernel oil contains oleic acid-60.6%, linoleic acid-17.1%, palmitic acid-16%, stearic acid-3.8%, arachidic acid-1.4%. Pericarp of fruit contains black corrosive juice consisting 90% of anacardic acid and 10% of non-volatile alcohol called cardol.\(^3\) The pharmacological activities of bhallataka have been attributed to some flavonoids present in the drug, those are related to their anti-inflammatory properties.\(^4\)

Keywords— Bhallataka, respiratory tract disorders, Ayurveda, phytoconstituents.

**Ayurvedic Point of View:**

In ancient scriptures of Ayurveda i.e. Charaka Samhita, Sushruta Samhita, Ashtanga-sangraha, Bhavprakash Nighantu, Raj Nighantu, medicinal properties of bhallataka has been described. Acharya Charaka has included bhallataka in deepaniya gana, kushtaghna gana and mutrasangrathaniya gana. Sushruta Samhita describes it in nyagrodhadi gana and mustadi gana.

In the Dravyaguna Vigyan of Acharya Priyavat Sharma, Bhallataka is described with its synonyms, Arushkara, Shophkrita, Agnimukha, Anal, Vatari, Mahattikshna etc. Bhallataka has katu, kashaya, madhur ras. Ushna veerya and Madhur vipaka but in Bhavprakash Nighantu Acharya has explained kashaya and madhur ras of bhallataka with its agnideepana, chedana, bhedana and medhya karma. Bhallataka possess laghu, tikshna, snigdha guna and vata-kaphaghna properties.

**Purification of Bhallataka:**

Since bhallataka is extremely hot it may cause allergic reaction on contact with skin or soft tissues. To reduce its toxicity, it should be used after purification. Procedure of purification of bhallataka is explained in Raj Nighantu. According to that ripe fruits are taken and put into water. Only sink fruits are taken for purification. The seeds are then cut into two halves and kept immersed in dry brick powder for nearly 7 days. Brick powder will absorb all the strong pungent oil from seeds and reduces its toxicity. After that the seeds are boiled in cow milk and at last washed with Luke warm water. The only seeds which are purified with this procedure should be used on patients.

**II. DISCUSSION**

Semicarpus anacardium Linn. is one of the most popular medicinal herb in the world of Ayurveda. Respiratory system disorders are mostly due to the inflammation of soft tissues of lungs and skeletal muscles. Other common causes are infection of various micro-organism, bacteria’s, viruses etc. There are several studies, which have been conducted for anti-inflammatory, antimicrobial activities of bhallataka.

1. Satyavati and others have established that *Semecarpus anacardium* Linn. is effective against immunological and non-immunological origin inflammation.

2. Monocyte infiltration and fibroblast proliferation occurs in chronic inflammation. It was studied that non-steroidal anti-inflammatory drugs (NSAIDS) acts by inhibiting granulocyte infiltration and decreases the inflammation with preventing generation of collagen fibres. The study conducted by Ramprasathet and others has observed that SA nut extract also inhibits monocyte infiltration and fibroblast proliferation and concluded the anti-inflammatory efficacy of *Semecarpus anacardium* Linn. against all phases of inflammation. It is also observed that there is no ulceration of gastric mucosa occurs in the animal treated with extract of *Semecarpus anacardium* Linn.

3. Anti-microbial action of *Semecarpus anacardium* Linn. is studied by Mohanta and others against Staphylococcus aureus, which is one of the causative organism of pneumonia. They prepared the aqueous and organic solvent extracts of the plant and observed its anti-microbial activity.

4. Nair and others have shown the antibacterial properties of plant extract in alcoholic extract.

5. Sharma and others established that nut oil of *Semecarpus anacardium* Linn. shows anti- microbial action against several gram negative and gram positive bacteria.

6. But some other researchers studied that Monoene and dienebhalwolans inhibit only gram positive anaerobes not gram positive aerobic bacteria, as bhalawolans are lipophilic in nature and cannot penetraes lipoprotein layer of cell membrane.

7. There is one another reference available for the traditional use of bhallataka in respiratory disorders in the area of Nepal. It has been using in bronchitis and asthma by the people of Nepal.

According to ayurveda respiratory system disorders can be correlated with the diseases of *Pranavaha srotas dushti*. *Mulasthana’s* (main locations) of this srotas are Hrudaya (Heart) that means Hrudaya samipa pradesha called as lungs or Phuphphas and Rasavahi dhamanya. It means that, in pranavaha srotas dushti rasa dhanvagnimandya and rasa dushti occurs. Kapha dosha is labelled as mala of Rasa dhatu in Ayurveda. Thus rasa dushti is directly related with kaptha dosha which is a leading factor for respiratory tract disorders. Episodes of respiratory track disorders or kaphavyadhi of Pranavahsrotas dushti occurs during kaphavardhak kala, such as varsha kala, sheet hritu, pragvatkala (early morning) or when patient is having diet full of kaphavardhak dravyas. Accumulated dushti kaptha dosha in lungs tissues, causes srotorodha of pranavaha srotas i.e. blockage in the respiratory tract due to increased and infected cough. This again lead to interruption of pran vayu i.e. difficulty in respiration. Due to causative factors, when pathogenesis occurs in pranavaha srotas snigdha, guru guna of kaptha get aggravated and causes pranavaha srotas dushti. Due to repeated attack vayu-kosha loses its elasticity and shows symptoms like difficulty in breathing, chest congestion, cough
etc. Bhallataka is one of the commonly used and significantly effective herbs for diseases of pranavah srotas dashi, as Acharya said that, there is no any kaphavikruti with cannot be cure by bhallataka.[17]

<table>
<thead>
<tr>
<th>Properties</th>
<th>Kapha dosha (Prithvi)</th>
<th>Bhallataka²⁰ ([Semecarpus anacardium])</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guns</td>
<td>Guru - Prithvi</td>
<td>Laghu - Prithvi</td>
</tr>
<tr>
<td></td>
<td>Snigdha - Jal</td>
<td>Tikshna - Prithvi</td>
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<tr>
<td></td>
<td>Sheet</td>
<td>Ushna - Prithvi</td>
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<tr>
<td>Panchamahabhuta</td>
<td>Prithvi - Madhur</td>
<td>Prithvi - Tej, Vayu</td>
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<td></td>
<td></td>
<td>Kashaya - Prithvi, Vayu</td>
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<tr>
<td></td>
<td></td>
<td>Ushna - Prithvi, Jal</td>
</tr>
</tbody>
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In above table we have observed that properties of bhallataka are opposite to that of kapha dosha. In Panchabhaautiful sense, here we have observed that kapha dosha is Prithvi, Jal mahabhuta Pradhan, whereas bhallataka having Tej and Vayu mahabhutas in maximum quantity. According to the Siddhanta of Vishesa in Ayurveda properties of bhallataka which are opposite of kaphadosha will decreases the alleviated Vikrut kapha dosha. Chedan and bhedan karma of bhallataka also help to remove the srotovibandha. Rasa-dhatvagnimandhya is cured by deepaniya karma of bhallataka. Hence bhallataka oil given with milk is effective in various pranavaha srotas diseases.

In ayurveda texts it is advised to take 4-5 drops of bhallataka oil (Shevate) with milk. Snigdha and sheet guna of milk will be helpful to prevent corrosive action of bhallataka due to its ushna, tikshagnuna. Milk is balya and also used for Bruhana will help to recover strength of patient[20].

There are several other uses of bhallataka also given in ayurveda. Bhallataka used as folk medicine since ancient times for externally as well as internally. The fruits, oil and seeds of bhallataka have great medicinal value. Along with respiratory tract disorders it’s also useful in skin diseases, malignant growth, constipation, excessive menstruation, etc. Although bhallataka is very useful herb, it should be used cautiously as it possesses extremely hot and sharp attributes. It must be used after purification. It is contraindicated in pregnant women, small children, old age person, haemorrhagic disorders, diarrhoea, dysentery, gastritis etc. According to Ayurveda it should be contra-indicated in pittaj prakuti person, pittaj vikara and Ushna kala. Any allergic reaction or rash due to bhallataka should be treated with antidotes that are coriander leaves pulp; coconut oil, ghee and butter with musutu.[19]

III. CONCLUSION

From the above study, it can be concluded that kapha dushti and rasa dhatu dushti are leading factors in causing respiratory tract disorders. Bhallataka is mentioned as significant medicinal herb for respiratory tract disorders both in Ayurveda and modern science. Due to its, antimicrobial, anti-inflammatory, anti-pyretic and analgesic properties as well as due to its ushna, tikshna attributes it can be useful in respiratory tract disorders. Also there is a scope to study, which flavonoids from bhallataka are useful in the respiratory tract disorders.

REFERENCES

[5] Dr. Pranita Mali PG Scholar dravyaguna, pranitamali2050@gmail.com clicked on 17/12/17