

### Review on *Kasturi*: A *JantavaDravya* (Animal Product)

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#### Abstract

The name of Musk is known to the entire mankind but today, only a few persons have the privilege to smell its odor. There is a perfume so famous that everyone on earth knows its name but it is so rare that only very few living human beings can boast at having ever smelled it. All kind of deer do not have “The Musk” The musk found in which deer, that is Known as Kasturimrig (Sanskrit), Hiranmuski (Unani). The Musk comes from a small deer that has two fangs; he uses to scratch forest lichens on which it feeds. Musk has been a key constituent in many perfumes since its discovery, being held to give a perfume long-lasting power as a fixative. Practitioners of Indigenous Systems of Medicine claim to obtain beneficial results with musk in various disorders viz. Visha (Toxicity), Chardi (Vomiting), Daurgandhya (fetid smell), Kilas (leucoderma).

#### Keywords

*Musk, Kasturi, Ayurveda, MoschusMoschiferous*



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## INTRODUCTION

Musk is the dried secretion from the prepuccial follicles of male musk deer. Practitioners of Indigenous Systems of Medicine claim to obtain beneficial results with musk in various ailments.

This is an anti-inflammatory agent like hydrocortisone. Attempts have been made to substitute its effectiveness in reducing the mortality and the bleeding tendencies<sup>1</sup>. Karady et al. showed that extracts prepared from different animal organs such as rat, guinea-pig liver, lung, spleen from human urine inhibited the action of histamine on isolated smooth muscle preparations<sup>2</sup>. Kovacs and Melville reported that extracts of normal human urine exerted a wide range of activity in antagonizing *in vitro* effects of histamine, 5-hydroxytryptamine and the Schultz-Dale reaction<sup>3,4</sup>. Bhide *et al.* observed that extracts of frog skin antagonized *in vitro* effects of histamine on guinea-pig ileum, capillary permeability and the Schultz-Dale reaction<sup>5</sup>. On the basis of these observations it was decided to investigate whether or not this histamine antagonist is also present in musk, which is a prepuccial secretion. The name, originated from Sanskrit 'muská' meaning "testicle," has come to encompass a wide variety of

substances with somewhat similar odors although many of them are quite different in their chemical structures. They include glandular secretions from animals other than the musk deer, numerous plants emitting similar fragrances, and artificial substances with similar odors<sup>6</sup>.

The general pharmacological properties of musk were studied for hundreds years. From the first report regarding the male sex hormonal modification in 1936<sup>7,8</sup>, there are numerous pharmacological actions listed in the literatures, such as, cardiovascular stimulation<sup>9,10</sup>, anti-inflammatory action<sup>11,12</sup>, inhibition of leukocyte migration<sup>12</sup> and the platelet aggregation induced by collagen but not ADP and AA in rats<sup>13</sup> and the potentiation of b-adrenergic effect<sup>14</sup>, protection of CCl<sub>4</sub>-induced acute hepatitis<sup>15</sup>.

## Chemistry

The fresh musk secretion is a dark brown viscous semi solid that turns to brownish-yellow or purple-red granules when dried. The term musk is used to describe other materials with a similar odor, although these preparations may be of synthetic or herbal origin. Musk may have Spasmolytic, CNS-depressant, and antibacterial activity<sup>16</sup>.

When distilled, musk yields the principle, muscone, musone (0.3% to 0.2%), and normuscone. Muscone or 3-methylcyclopentadecanone, is the key flavor component of musk. Two androstane alkaloids were isolated from the musk of *M. moschiferus*, and the structure revealed by 2-dimensional nuclear magnetic resonance analysis. The structure were 3-alpha-ureido-androst-4-en-17-one and 3-alpha-ureido-androst-4-en-17 Beta-ol. Other compounds present in musk include steroids, paraffins, triglyceride, waxes, mucopyridine, and other nitrogenous substances, and fatty acids<sup>17,18,19</sup>.

### Artificial compounds

Nearly all musk fragrance used in perfumery today is synthetic, sometimes called "white musk". They can be divided into three major classes: aromatic nitro musks, polycyclic musk compounds, and macrocyclic musk compounds. The first two groups have broad uses in the industry ranging from cosmetics to detergents. However, the detection of the first two chemical groups in human and environmental samples as well as their carcinogenic properties initiated a public debate on the use of these compounds and a ban or reduction of their use in many regions of the world. Macrocyclic musk

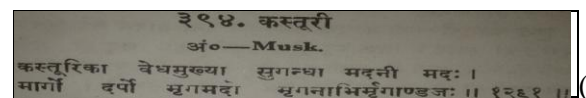
compounds are expected to replace them since these compounds appear to be safer<sup>20</sup>.

### Kasturi in Ayurveda

In SushrutaSamhita name of Kasturi-mriga is 'Karal'. Dalhana told that Karal-Musk deer having teeth projected downwards and found in Himalaya region etc. Musk is the dried secretion from the perpetual follicles of Musk Deer (*Moschus moschiferus* L.). The animal is found in India, Tibet, Nepal, China and Russia etc. at an altitude of 3000-4000 meters. Musk is found in a small sac situated at a short distance behind navel and just in front of perpetual orifice. For collection of Musk the pod is completely removed after killing the animal. The quantity available in each pod varies from 8 to 60 gm. Fresh Musk is usually moist which can be dried in open sunlight.

### Synonyms –

Kasturika, Vedamukhya, Sugandha, Madini, Mada, Marga, Darpa, Mrigmada, Mrignabhi, Mrigandaja, Sahasrabhida, Gandhachelika<sup>21,22,23</sup>, Gandhavedi & Svetamrigandaja<sup>24</sup> etc.



K. Ni Aushadhivarga 1291)

अथ कस्तूरी । तस्या नामभेदगुणानाह  
मृगनाभिर्मृगमदः कथितस्तु सहस्रभिः । कस्तूरिका च कस्तूरी वेधमुख्या च सा स्मृता ॥५॥  
कामरूपोद्भवा कृष्णा नैपाली नीलवर्णयुक् । काश्मीरी कपिलच्छाया कस्तूरी त्रिविधा स्मृता ॥६॥

( B.P. Ni Karpuradivarga 5-6)

14: *Kastūrī: Moschus moschiferus* Linn. NO: Cervidae  
कस्तूरिका मृगमदो मृगनाभिर्मृगाण्डजा ।  
मार्जारी वेधमुख्या च मदनी गन्धचेलिका ॥ २७ ॥

( D. Ni Chandandivarga 27)

### Types: According to there Habitat

Bhavaprakash, Kaidev, Raj Nighantu described three varieties of Kasturi<sup>21,22</sup>

Kamrupa- Krishna (black color)

Naipali- Lohita (red color)

Kashmiri- Kapilvarna (Redish brown color)

काश्मीरे कपिलच्छाया नैपाले चैव लोहिता ।  
कामरूपोद्भवा कृष्णा कस्तूरी त्रिविधा स्मृता ॥ १२६३ ॥

1/4(

K. Ni Aushadhivarga 1293)

### Pharmacological action

कस्तूरी कटुका तिक्ता क्षारोष्णा शुक्ला गुरुः ।  
कफवातविषच्छर्दिशीतदौर्गन्ध्यशोपहा ॥ १२६२ ॥

( K. Ni Aushadhivarga 1292)

Kasturi has Katu,Tikta;Rasa, Ushna;Virya, Guru;Guna,alkaline in nature and Kapha-vataShamak. It is useful in the treatment of Visha (Toxicity), Chardi (Vomiting),

Daurgandhya (Fetid smell), Sosha (Malnutrition).

कस्तूरी के गुण--  
कस्तूरी सुरभिस्तिका चक्षुष्या मुखरोगजित् ।  
किलासकफदौर्गन्ध्य-वातालक्ष्मीमलापहा ॥ ४९ ॥

( R. Ni Chandanadivarga 49)

Kasturi mitigates Chardi (Vomiting), Raktapitta (Bleeding disorders), KaphaKilasa (Skin disease), Dauryagandha (Fowl smell) etc<sup>25</sup>.

### Test of Kasturi

३९५. कस्तूरी-परीक्षा  
या गन्धं केतकीनां वहति भृशतरं वर्णतः पिंगलाभा ।  
स्वादे तिक्ता कटूष्णा लघु परितुलिता मर्दिता चिकणा स्यात् ॥  
दग्धा नो याति भस्म चिमचिमिकुरुते चर्मगन्धा हुताशो ।  
सा शुद्धा शोभनीया वरमृगतनुजा राजयोग्या प्रदिष्टा ॥१२६६॥  
करतलजलमध्ये स्थापनीया महद्भिः ।  
पुनरपि तदवश्यं चिन्तनीया सुहूर्तम् ॥  
यदि भवति च रक्तं तज्जलं पीतवर्णम् ।  
न भवति मृगनाभिः कृत्रिमोऽयं विकारः ॥ १२६७ ॥

( K. Ni Aushadhivarga 1296-1297)

- Then a small quantity of the musk placed in fire, it melts with bubble, that means it is pure. It will not melt but will burn and become hard like steel, if impure.
- Its fragrance just like ketaki pushpa<sup>26</sup>/ Kevda if it is pure musk.
- If a thread placed on asfoetida has the smell of asfoetida after placing in musk, it is not a pure one.

### Pure Kasturi-

Kasturi smell like kevda extract, Brown in colour, Tikta and Katu in Rasa, Ushna in Virya, Guru in Guna. After trituration it becomes smooth, The Musk placed in fire than it is not burned, smell like leather<sup>22</sup>.

### Future prospects

The musk deer lives in Nepal, India, Pakistan, China, Korea, Siberia and Mongolia. To obtain their musk, the deer is killed and its gland, also called "musk pod", is removed. It is dried either in the sun, on a hot stone, or by immersion in hot oil. Upon drying, the reddish-brown paste turns into a black granular material called "musk grain", which is used for alcoholic solutions. The aroma of the tincture becomes more intense during storage and gives a pleasant odor only after it is considerably diluted. No other natural substance has such a complex aroma associated with so many contradictory descriptions; however, it is usually described abstractly as animalic, earthy and woody<sup>27</sup> or something akin to the odor of baby's skin<sup>27</sup>. Good deer musk is of a dark purplish color, dry, smooth and unctuous to the touch, and bitter in taste. The grain of

musk will distinctly scent millions of cubic feet of air without any appreciable loss of weight, and its scent is not only more penetrating but more persistent than that of any other known substance. In addition to its odoriferous principle, it contains ammonia, cholesterol, fatty matter, a bitter resinous substance, and other animal principles. The best quality is Tonkin musk from Vietnam, followed by Assam and Nepal musk, while Carbadine musk from Russian and Chinese Himalayan regions are considered inferior<sup>28</sup>. No specific purification process for Kasturi is found in Ayurveda treatise which may indicate that Kasturi does not require to undergo specific purification process and can be directly used as medicine. However if Kasturi is contaminated with dust or other foreign particles it is advisable to filter them out. Chief market of kasturi is Tatasinalu town which is situated near the border of Tibbet. It is also found in Unana much available musk in the market, imported from Mangolia (north), and east Siberia – it is known as Carbadine musk, but it has intensive acrid smell, these not to be used<sup>29</sup>.

### Specific Formulations of Kasturi in Ayurvedic Drugs: [Table 1]

**Table 1**

S.No	Name	Name of the Diseases	Reference
1	KasturiBhairava Rasa	Prameha, Chronic Fever, Micturation,Stone ( calculus	BhaisajyaRatnavali
2	KasturiBhairava Rasa (madhyama)	Enteric Fever Tuberculosis, Sannipatajwara	Rasa saraSangraha
3	KasturiBhairava Rasa	Sannipatajwara	Rasa saraSangraha
4	KasturiBhusana Rasa	Vatasleshmajwara, Dyspepsia, Swas, Kasa.	BhaisajyaRatnavali
5	KasturiModaka	Excess urination treatment, Prameha, Somaroga, Micturation etc.	Rasa saraSangraha
6	Kanchanabhra Rasa	Tuberculosis, Premeha, Aphrodisiac,	Rasa saraSangraha
7	Chandrodaya Rasa	Aphrodisiac, Rasayana, Antitoxic, Baldness, Valitpalit	Rasa saraSangraha
8	MahanarayanaTaila	Vatvyadhichikitsa, Jara, Khalita, Palita, Good for vision, Vaginal diseases, Vrishya	BhavaprakashSamhita
9	BasantKushumakar Rasa	Prameha, Brain tonic, Aphrodisiac, Kshaya, Swasa, Kasa, Rasayana	Rasa saraSangraha
10	BrahmiVati	Fever Treatment, weakness, Prasutijwara,	BhaisajyaRatnavali
11	Dashamularishta	Aphrodisiac, Colitis, Swasa, Kasa, Tuberculosis, Vata Diseases	BhaisajyaRatnavali
12	GandharajaTailam	Vataroga, Prameha, Agnimandya, Impotancy	BhaisajyaRatnavali

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