Identity of certain species of plants of unknown source from Rasendramangala

Review Article

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Abstract

Combination of plant and mineral products were derived in the process of exploring safe and effective remedies which can cure severe and deadly diseases. Some plants are used for processing, purification and calcination of minerals, metals and gems. Mainly the purpose of plants in Rasa shastra is to obtain absorbable metallic molecules in the maximum possible minute form. But some plants mentioned in textbook of Rasa-shastra are not identified properly, because Rasa siddhas like Nagarjuna and Rasa Vagbhata have used some rare synonyms of plants, to conceal them from the knowledge of unknown and mischievous personalities, to avoid miseuse. But at present, it is necessary to identify them properly, to use the plants for exact calcination and purification for the benefit of mankind. In the present study, nearly ten plants out of 47 unidentified plants are selected from Rasendra Mangala written by Acharya Nagarjuna in the period of 7th and 8th Century A.D. and a trial has been made to work out on such unidentified plants depending upon their synonyms, utility and combination with other drugs. To quote some, Kanchuki, Chandali, Choraka, Chandravalli and Sarpakshi.

Keywords: Nagarjuna, Rasa-Vagbhata, Rasendra Mangala, Plants of unknown source, Kanchuki, Choraka.

Introduction

Rasa-shastra is a specialized branch of Ayurveda which mainly deals with the pharmaceuticals of unique and potent preparations. Metals and minerals are the integral part of Ayurvedic therapeutics along with herbal preparations. Use of metals in medicine is often associated with toxicity, but Ayurveda made them into biocompatible form by the use of certain plants for processing, colouring (coating) and certain detoxification processes like Shodana (Purification), Marana (Incineration), Bhavana (Trituration) etc. which removes the toxic effects and calcination of minerals, metals and gems. Mainly the purpose of plants in Rasa-shastra is to obtain absorbable metallic molecules in their maximum possible nano form. Recent studies reveal the synthesis of silver nanoparticles using leaf broth of medicinal herb, Tulasi (Ocimum sanctum Linn). (1) But some plants mentioned in lexicons of Rasa-shastra have not been identified properly, because Rasa siddhas like Nagarjuna and Rasa-Vagbhata have used some rare synonyms of plants to conceal them from the knowledge of mischievous personalities to avoid miseuse.

Acharya Nagarjuna was pioneer and contributed a lot in this field and he is recognized as the Father of Rasa-shastra. Among many of his works Rasaratnakara, Rasendra Mangala, Kaksha Puta, Kubjika Tantra, Ascharya Yogamala, Loha shastra etc. are claimed to be contributed by Acharya Nagarjuna.

In the present study the famous text book Rasendra Mangala, written by Acharya Nagarjuna in the period of 7th to 8th Century A.D is considered for studying medicinal plants used in Rasa-shastra. The original manuscript has eight chapters. The published book of Rasendra Mangala with Gurjari commentary by Professor Mishra B.D and Mishra D.K containing first 4 chapters are considered for the present study as the original manuscript was not published. According to Prof. P.V. Sharma, the remaining part (last four chapters) of this book is available in Asiatic society library, London. (2) In this treatise, nearly 400 plants are used. Out of them, maximum number of plants are commonly found all around the country. But to our dismay, there are many plants which are of doubtful identity. They are botanically not identified well and the synonyms used are leading us to a state of confusion, which is a real handicap to the workers and students of Rasa-shastra.

Keeping this fact in mind, a trial has been made to work out on unidentified plants in the full length, depending upon synonyms, utility and combination to bring them into the streamline which definitely helps the enthusiastic workers in processing metals and minerals.

Aims and Objectives

- To work out on some unidentified plants of Rasendra Mangala.
- To rule out the controversy of the synonyms leading to confusion based on the context of their utility and combination with other drugs in the processing of metals and minerals, depending upon other Ayurvedic literature and modern day work on the subject.
- To finally propose the botanical identity of some of the drugs with more probable species.

Materials and Methods

The study was done on Acharya Nagarjuna’s Rasendra Mangala which is one of the great works on

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Rasa-shastra. Plant drugs which are of unknown identity are leading to a state of uncertainty as these procedures are meant actually to cure the ailing patients using them therapeutically. So, the plant drugs mentioned in Rasendra Mangala are enumerated and their identity is established by comparing them with the known literature.

Samhitas and their respective Commentaries, Nighantu (Bhavaprakasha Nighantu, Dhanvantari Nighantu, Raja Nighantu, Kaiyadeva Nighantu) and also books on Rasa-shastra (Rasa-Ratna-Samucchaya, Rasa Paddhati) have been referred for the study of this topic and discussion is based upon its conceptual part to bring out final conclusion. The study has been limited to the available literature at our purview. The unidentified plants list is tabulated and tried to resolve the most probable source for the maximum possible drugs which will be discussed further.

Observations

This text contains nearly 400 plant drugs along with rasoushadhas (mineral drugs), among which 47 plants are of unknown identity. The List of the 47 plants which are unidentified are Amari, Bhulaha, Chandali, Chandravalli, Choraka, Damayanti, Divari, Dvipadi, Ghanaka, Ghanatra, Ghatodhaka, Gopaliaka, Gouriilaha, Gopendra, Halottamakhya, Hasthiikarna, Javichi, Kalashi, Kanchuki, Kanjiri bija, Kharisaka, Kiratundi, Kitarani, Koyalas, Krutamalsa, Kuthersaka, Madamudita, Mahakali, Makanilika, Matravanaheka, Meenakh, Meghanada, Moksha, Mrugadurga, Rasakshi, Sadaladala, Sarpalsh, Trayanti, Uchhata, Urna, Vajrakanda, Vajri, Vandyha kanda, Vayasi, Vira, Vrunatavari.

From the above list of plants with doubtful identity, 10 plant names which are frequently mentioned in the formulations and purification procedures have been considered for this study. Therefore, in this work those synonyms will be discussed one after the other as by available literature, taking help of the commentators of other works on Rasa-shastra. Wherever necessary the opinions of ancient commentators like Dalhana, Hemadri, Chakrapanidutta and modern commentators like Chunekar K.C, Kamat S.D, Bapalal Vaidya, Thakur Balvant Singh and Sharma P.V. are also considered.

Some other Nighantu have also given some plant names as given by Rasendra Mangala but in different context. Clarification is sought after duly regarding the opinions of the contemporary works.

Results and Discussion

The 10 drugs which are chosen for evaluation are discussed below:

Kanchuki:

In the context of Parada Murchana,(3) trituration of juice of Rajika, Kaipaya, Kakanmaci, Mesashrunghi, Krisna Dattura and Aранала is done with Kanchuki, Garudi, Varakhika, etc. to attain Panchatva (Death). In Abhraka Satvapatana,(4) Abhraka Dhrut(5) and Loha Dhrut(6) also Kanchuki plant was mentioned.

Pandit Narahari opines that Yava – Hordeum vulgare Linn. which is one of the principle grains of India as “Kanchuki”.(7) Acharya Kulkarni the author of Rasa Ratna Samucchaya quotes Dhanya in the process of Ahraka Satvapatana.(8) This (Kanchuki) is a synonym applied for any cereal which is not yet husked. That is the reason many commentators form the Northern part of India equated it with Yava or Barley i.e. Hordeum vulgare Linn. If barley is not available, paddy or intact wheat can be used in its place. As the author Nagarjuna resided for most of his life and experimented with minerals and metals only in the southern part of India, it will be ideal in our opinion to consider Sali dhanya as Kanchuki.

Chandali

Flower juice of Chandali is used for the trituration of Parada, Swarna and Vai크란타 bhasmas in the preparation of Vaikranta Garbha Rasa (9) which is indicated in the treatment of Mutukrītivehra.

In Raja deepika commentary of Raja Nighantu it quotes Chandali as unidentified plant.(10) Though P.V. Sharma suggests in favour of some variety of Surana, in view of its anti – poisonous and rasayana properties, as one of the Dioscorea species should also not be ruled out.

As per Bhavamisra, a variety of Varahi kanda which is known as ‘Ghruṣti’ in Western part of India is also known as ‘Charmakara aluka’. (11) The Sanskrit equivalent of Chandala is charmakara. The outer layer of the bulbiferous roots of Dioscorea bulifera Linn. look like a freshly taken out animal hair with hair follicles. That is the reason this plant can be better equated with Dioscorea bulifera Linn. only, which contains large number of Phenolic compounds, Steroids and Calcium oxalates.(12) Also Dioscorea bulifera is well indicated in Urinary tract infections (13) and hence must have been used in the preparation of Vaikranta Garbha Rasa.

Coraka

In the preparation of Pratapa lankeshwara ras,(14) Coraka along with some other drugs is triturated with buttermilk and this paste is rubbed over afflicted skin to cure all skin disorders is mentioned.

In the context of Candamadi Varga(15) of Raja Nighantu, Coraka is being mentioned as Pitta hara and having strong aroma.

The commentators of Charaka mention it with synonyms like Corapusipika, Coruhali (16) etc. This is identified as Angelica glauca Edwg. By Bapalal, Sharma P.V and Chunekar K.C (17) which belongs to Umbiliferae. It is called as ‘Chora’ in and around Punjab region which is now called as Charaka. (18) Charaka mentions it in Sanjana sthapana dasamena(19) and considers the same.

This flowering of Angelica glauca is during late midnight, and colour of the flower is flowery, which is the exact period when dacoits / thieves start their functioning. Hence the name Coraka is implied to Angelica glauca Edwg. based on the nature of its flowering.

Also it can be confirmed Angelica glauca as Coraka for it being Pittahara and indicated in Skin disorders (20) which applies the same for the indication of Pratapa lankeshwara ras.

Chandravalli

In the preparation of Rasa bhasma,(21) Chandravalli along with some other drugs are triturated with Parada and Gandhaka to attain pishthika.
This name is quite controversial. Chandravalli is the synonym of Prasarini(22) (Parpatadi Varga of Raja Nighantu) and Madhavi(23) (Karveeradi Varga of Raja Nighantu) as mentioned by Pandit Narahari.

It is suggested to use Madhavi lata i.e., Hiptage benghalensis (L.)Kurz., as Chandravalli basing on its property of climbing in half moon shape (Chandrakara) as it is a woody climber and support from Raja Nighantu, where it is mentioned along with other varieties of flowers.

Vayasi

In the context of Deepana sanskara of Parada, (24) Vayasi and some other drugs have been mentioned.

Two varieties of this drug are recognised. One is North-west Himalayan plant (Solanan dulcicnara Linn.) and the next is Himalayan extended southwards (Solanan nigrum Linn). (25) Acharya Bhavamisra considers Kakamachi – Solanan nigrum Linn. as Vayasi. (26)

In the Text Aamarakosa it is quoted that ‘Kakamachi tu vayasi ityamarah’. (27)

Thakur Balwantji also opines that Kakamachi is Solanan nigrum Linn. (28)

Kakamaci is one of the plants belonging to ‘Karakrastaka’ which is the group of drugs prohibited from consumption while consuming metallic compounds after processing, (29) even then Kakamaci is used frequently in the preparation and processing of metallic compounds during their incineration (Marana).

Meghanada

Juice of Meghanada is used along with other plants in the preparation of Pundarika Kusthahara Rasa. (30)

Three kinds of Tandula recorded by Nighantu are Tanduliyaka, Tandul biha, Meghanada where first variety is self-sown and other two varieties are cultivated. Kamat S.D equated Aamaranthus tristis wild. as Meghanada. Aamaranthus tristis is also called as Meghanada in the regions of Maharasthra.(31) According to Ambikaladutta Sastry commentator on Rasa Ratna Samucchaya, mentioned Meghanada rasa under Jvara Chikitsa as ‘Kantedar caulai’ which is the Hindi name of Aamaranthus spinosus Linn. (32)

Prof. K.C. Chunekar mentions it under Shaka Varga as Aamaranthus spinosus Linn. (33) He also quotes that Tanduliy or Caulai has so many varieties, according to number of spines and the colour of leaves i.e. green, red or mixed with blue.

Comparing its properties with the formulation of Pundarika kusthahara rasa, Aamaranthus species is quoted to be Sita Vritya and Pitta hara.(34)

When the rainy clouds start thundering, this tuberous grass appears to grow. Hence, it is known by the name of Meghanada. Correlating with its nature of occurrence Aamaranthus spinosus Linn. is considered as Meghanada in this context.

Vajrakanda

While describing the process of Satvapata of Vaikranta(35) and Sarvaloha kramana of Parada,(36) Vajrakanda is used along with some other plants.

Two species of plants are utilized by the workers for this purpose. Commentators like Kulkarni have suggested ‘Vanasarana’ which is a wild variety of C orn (Kanda). (37) But Dalhana in his commentary on Sushruta equated it with ‘Snuhi’. But in southern part of India ‘Vanapalanda’ is used in place of Vanasarana. P.V. Sharma also suggests Vajrakanda as Vanapalanda i.e. Urginia indica Kunth. belonging to family Liliaceae. (38) This plant is known as ‘Vajjurkanda’ in Madhya Pradesh.

Hence, our suggestion is that basing on the local synonym this plant can be considered as Urginia only; apart from the high content of Sulphur salts which are useful for purification of metals. Therefore in this context for processing, bulbs of Urginia Species is suggested.

Sarpakshi

Another plant drug named Sarpakshi is included as one among the plants in the preparation of Jaramrutyuhara Rasa(39) and Pundarika Kusthahara Ras.(40)

Many of the commentators like Dalhana, Arunadatta could not clarify the plant and opined conflictingly. Depending upon commentators and traditions prevalent in some parts of India, modern scholars like Thakur Balwant Singh have equated this plant with Ophiorrhiza mungos Linn. or some Raawolflia species. (41) Morphologically some parts of this plant should resemble snake or snake with projecting eyes and tongue. Chunekari in his work on Bhavaprakashash Nighantu mentions Sarpakshi as Ophiorrhiza mungos Linn. and quotes as ‘Sarpakshiva puspamasyah’(42) which means its flowers resembles the eyes of snake. But neither of the two above species is fulfilling the said features. Hence there is a need to go on for another plant which is also used in Rasas-ashastra.

In another context of same work Arisaema murrayi is equated with Nagini kanda.(43) Similarly it is ideal to consider another plant of same genera whose projecting spathe appears like snake’s hood with a scaly appearance and two prominently growing red or white coloured oil glands on both sides looking like eyes. Arisaema candidendim using var. alba grows in Western Himalayas and is preferred here. It is known for its anti-poisonous actions in local areas.

Vira

This plant name is mentioned under the process of A hhvara Satvapata.(44)

Dalhana in his commentary quotes ‘Kakoli vira svamnam prasiddah’ under Kakolyadi gana of Susruta.(45)

Acharya P.V. Sharma considers Roscoewa procera as Vira. Later Ashvagandha is advised to be substituted instead of Kakoli and Ksira kakoli due to unavailability of the drugs.(46) But, traditionally in Andhra Pradesh (northern parts) stem juice of Satvaa is used to purify and calcinate metallic compounds like Ahhraka. Vira is a synonym for Satavari also. Hence, in our opinion, Satavari (Asparagus racemosus Willd.) leaves can also be considered, wherever the word Vira is used.

Kutheraka

In the preparation of Pratapa lankeshwara ras (47) Kutheraka along with 16 other drugs are used for curing various skin disorders.
Acharya P.V. Sharma mentions it as Vanatulasi variety (Ocimum sp.)(48) Bhavamisra considers that Kutheraka is the Sanskrit name of Vana tulasi / Barbari.(49) But later clarifies by differentiating three types of Barbari (Kutheraka, Arjaka and Vatapatra) where Kutheraka is Vana tulasi variety with black coloured flowers and Arjaka is with white flowers.

Dalhana in his commentary quotes ‘Arjakah barbarikakaro laghu manjarikah sukshma patro nirgandha Svetakutherakah’ clarifying that Arjaka is the white variety of Kutheraka.(50)

As per the opinion of Thakur Balwanth Singh he equated this plant with Orthosiphon grandiflorus Boldingh, Arjaka is called as ‘Ajagura’ in the nearby places of Banaras.(51)

Kutheraka is indicated in Dusta rakstavikara (52) and the same is with Pratapa lankeshwara rasa which establishes its similarity in action wise between both.

Finally, due to its presence in many of the ancient texts along with the other Lamiaceae members and action wise similarity with the preparation in which it is used, this plant can be concluded as belonging to Orthosiphon species only.

Conclusion
Rasendra Mangala is one among the standard works accepted in the field of Rasa-shastra. It is both a work on processing of metals and also their utilization in treatment. Some plants mentioned in this work are not perfectly identified and posing a problem in the field of Rasa-shastra. Therefore, a trial work has been taken up, to rule out the existing confusion among some names of unknown origin. Nearly ten plants are discussed in this paper and their identity is proved. Further research work has to be carried out in order to find more unidentified plants of unknown origin.

The identified plants with their possible botanical source and family is tabulated below

| S. No | Name            | Possible botanical source | Family         |
|-------|-----------------|---------------------------|----------------|
| 1     | Kanchuki        | Hordeum vulgare Linn.     | Poaceae        |
| 2     | Chandali        | Dioscorea bulbifera Linn. | Dioscoreaceae  |
| 3     | Coraka          | Angelica glauca Edgw.     | Apiaceae       |
| 4     | Chandravalli    | Hiptage banghalensis Kurz. | Malpighiaceae  |
| 5     | Vayasi          | Solanum nigrum Linn.      | Solanaceae     |
| 6     | Meghanada       | Amaranthus spinosus Linn.  | Amaranthaceae  |
| 7     | Vajrakanda      | Urtica species            | Liliaceae      |
| 8     | Sarpalshi       | Arisauema candilissimus var. | Araceae       |
| 9     | Vira            | Asparagus racemosus Wild.  | Liliaceae      |
| 10    | Kutheraka       | Orthosiphon species       | Lamiaceae      |

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