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Comparative study of Pharmacognosy of market sample of Nagkeshar (*Mesua ferrea* Linn) with genuine sample

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Abstract
Aim: To compare Pharmacognosy of market sample of Nagkeshar (*Mesua ferrea* Linn) with genuine sample.)
Objectives: To collect the genuine sample from geniune source & market samples from four different region (E, W, N, S) of india. Minimum one sample from each region. To compare pharmacognosy of geniune & market samples.
Material and Methothodolgy: Evaluation of genuine sample and market sample of Nagkeshar were carried out as macroscopic examination, Microscopic examination.
Result and Conclusion: The collected geniune sample from natural habitat show similarity with API standard. The market samples collected from West & South show similarity with geniune sample in Pharmacognostical analysis. There were variations in Pharmacognostical analysis in market samples from East and North from geniune standard drug Nagkeshar (*Mesua ferrea* Linn).

Keywords: Nagkeshar, pharmacognosy, microcsopic

Introduction
Nagkeshar (*Mesua ferrea* Linn) is one of the important drug in ayurveda. It is also called Ironwood and Cobra's saffron. It is ingredient of Chaturjata. The Nagkeshar (*Mesua ferrea* Linn)is useful in several disease and specifically value as Pachan. It is Vishaghna, Sveda, Dourghandhanashan, Kushthagna and Kandughna. It is widely used drug. The part used is stamen of flower of Nagkeshar. Though the Nagkeshar is plenty throughout the Western Ghats and some part of Himalaya. Due to lack of awareness and high demand of market it has become costlier drug. Hence to get commercial profit it is adultered with morphologically similar and easily available drug. Thus there is need to check variation in market samples, to know the identity, purity and geniuinity of drug.

Material and Methodology
Collection of samples: The flowers of genuine sample of Nagkeshar (*Mesua ferrea* Linn) were collected from Konkan, Maharashtra in Vasant rutu (March-April).The flowers were authenticated as Nagkeshar (*Mesua ferrea* Linn) by Renowed taxonomist. The market samples were collected from the standard and authentic market source of 4 different regions as follows West-Manakarnika Pune, Maharashtra, East sample-Balangir Orissa, North from Delhi, South from Trisshur, Kerala.

Pharmacognostical evaluation
Macroscopic evaluation
Macroscopic evaluation is done with organoleptic parameters:
- Shabda (fracture) parikshan: Here the crude drug was subjected to bend & rupture it obtain information on brittleness. The appearance of fracture plane whether it is fibrous, smooth, rough, granular, etc
- Sparsha (Touch) parikshan: The texture is examined by taking small quantity of crude drug & rubbing it between the includes: Snigdha (oily)/Ruksha (rough)/Mrudu (soft)/Kathin (hard).
- Rupa parikshan
- Colour:-The colour indicates general origin of drug.
- Shape
- Size [24]:

- The length, width and thickness of crude material are of great importance while evaluating a crude drug.
- Procedure:-A graduated ruler in milli meters is adequate for the measurement of the length, width and thickness of crude material small seeds and fruit may be measured by aligning 10 of them on a sheet of caliberated paper, with 1mm spacing b/w lines and dividing the result by 10.
- Ras (Taste)parikshan includes :-Ras parikashan was done by individually by volunteers. Madhur, Amla/ Lavana/Katu/Tikta/Kashaya
- Gandha (Odour) parikshan: It is sensitive criteria based on individual perception. It was done by crushing the material between thumb & index finger or between palms with gentle pressure. then inhale the material in air. It includes: Sughandha, Nirghandha, Ugara, Manda,
- Sadharan Typical odour.10 volunteers were randomly selected. Each volunteer did panchbhauthik parikshan of geniune & 4 market samples according to proforma. Inference was taken from it

.

Microscopic Examination:

- The stamen of genuine & 4 market samples of Nagkeshar were placed on microscope slides separately and the stamens were tapped a few time with tweezers. Pollen grains fell from stamens.
- The stamens were removed, leaving pollen grain behind, a drop of water was added, and covererd with coverslip.
- 1-2 drops of 50% glycerine was added & covered.
- Excess glycerine was removed by blotting paper and observed under microscope.

Observation Discussion

Table 1: General features'

A Geniune sample	Stamen consist of anther, connective and filament united at base forming a fleshy ring; • each stamen have anther of 0.4 mm long linear basiflexed containing pollen grain, • Filament is slender filiform, more or less twisted.
B West sample	Stamen consist of anther, connective and filament united at base forming a fleshy ring; • each stamen have anther of 0.4 mm long linear basiflexed containing pollen grain, • Filament is slender filiform, more or less twisted.
C East sample	Dried immature fruit is seated on cup shaped perianth tube, six subequal lobes are in 2 whorls of each, imbricate aestivation. The surface is brittle and wrinkled, blackish brown. Odour. Rough, Kathin to touch,
D North sample	Flower bud, the pedicel short & thickened upward, bracts numerous, • Stamens many, sterile & short. Cylindrical in shape. Rough to touch
E South sample	Stamen consist of anther, connective and filament united at base forming a fleshy ring; • Each stamen have anther of 0.3 mm long linear basiflexed containing pollen grain, filament is slender filiform, more or less twisted.

Table 2: Macrosopic examination

Parameter	A Geniune	B West	C East	D North	E South
Shabda (fracture)	Brittle	Brittle	Brittle	Brittle	Brittle
Sparsha (Touch)	Ruksha (Rough	Ruksha (Rough)	Kathin (Hard)	Ruksha(Rough)	Ruksha (Rough)
Rupa parikashan					
Colour	Typical golden brown Characteristic	Brownish golden	Blackish Brown	Light brown	Brownish gold
Size	Anther 0.4 mm long,0.2 mm width	Anther 0.4 mm long,0.2 mm width	Pedicel 1.2 cm lenth	Pedicel 1.1cm length	Anther 0.3mm long,0.2 mm width
Shape	Cylindrical	Cylindrical	Clove like shape	Round	Cylindrical
Ras (Taste)	Kashaya (Astringent)	Less Kashaya (Astringent)	Katu (Pungent) Kashaya (Astringent)	Almost tasteless Less Kashaya (Astringent)	Kashaya (Astringent)
Gandha (Odour)	Sugandha (Fragrant) Charateristic	Sugandha (Fragrant)	Sugandha (aromatic) Similar to cinnanomum spp.	Sugandha (Fragrant)	Sugandha (Fragrant)

Inferences from Macroscopic findings

- The macroscopy of geniune sample shows parameters same as that of API.
- The sample from west & east sample differ in colour but have similar shape & size like geniune sample.
- The geniune, west & south samples have Kashaya ras (Astringent). The sample from east possess katu ras
- The geniune sample have characteristic odour. The samples from west & east sample also possess.
- Characteristic odour but some what less.
- The geniune and all market samples have Ruksha guna.
- The East sample vary in all parameter i.e colour, shape. odour, surface, taste, size than geniune sample. Similarly the west sample also differ in colour, shape, size.
- The North sample have round shape, almost tasteless, some what fragrant, light brown colour on dissecting it possess stamens of yellow colour.

Table 3: Comparative microscopy of geniune & market samples

Parameter	A Genuine	B West	C East	D North	E South
Colour	golden	Yellowish	yellowish brown	yellowish brown	yellowish brown
Shape	sphereical shape,	Triangular	triangular	triangular	spherehical shape
Features	1-3 minute distinct protuberances. Triporate	1-3 minute distinct protuberances. Triporate	3 apertures on wall. Tricoplate.	1-3 minute distinct protuberances. Triporate	1-3 minute distinct protuberances. Triporate

Inference from microscopial findings

1. The pollen grain of geniune sample show similarity in colour, shape, having 3 protuberances i.e sculpturing on exine wall with API standard.
2. The sample from West & south sample & North also show similariy with geniune sample in shape spherecial, protuberance, they vary only in colors.
3. The sample from east show variation in colour, shape, & have 3 apertures on exine wall.

Macacroscopic images of samples

Fig 1: Genuine sample

Fig 2: West sample

Fig 3: East sample

Fig 4: South sample

Fig 5: North sample

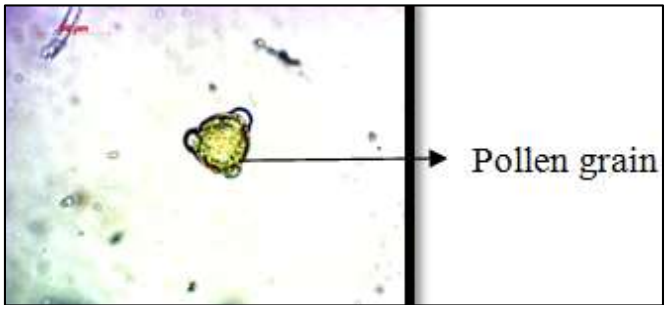

Fig 6: Genuine sample

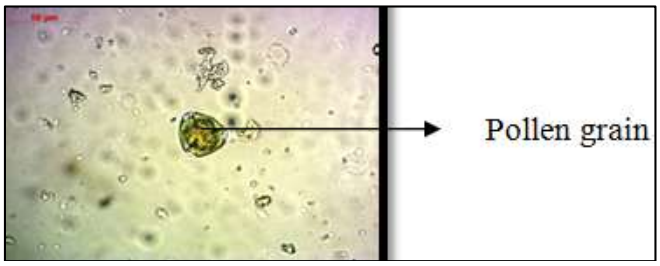

Fig 7: West sample

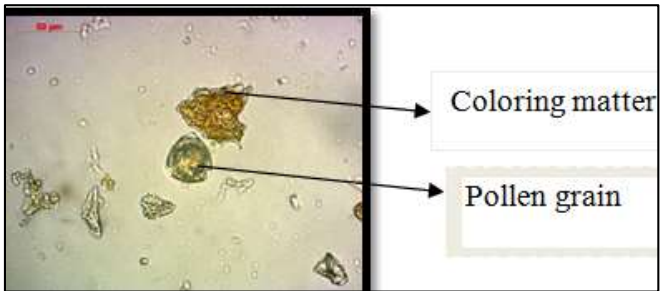

Fig 8: East sample

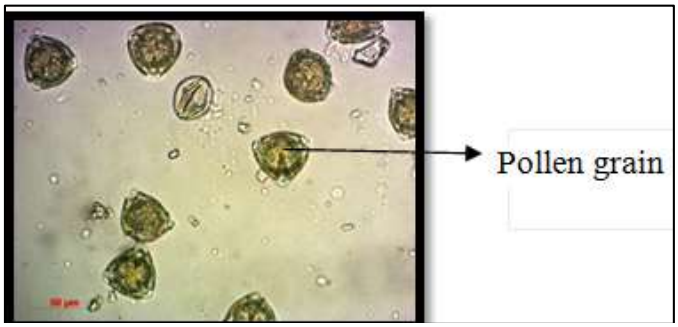

Fig 9: North sample

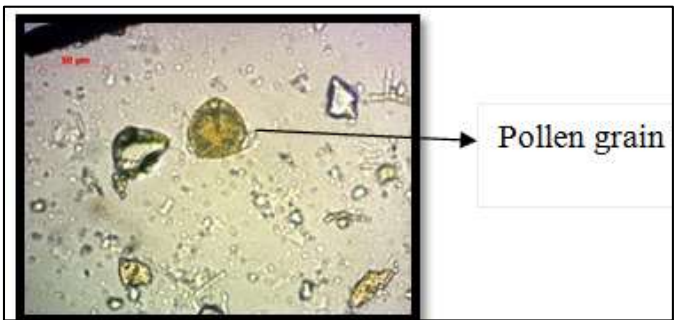

Fig 10: South sample

Conclusion

- The collected geniune sample from natural habitat show similarity with API standard.
- The market samples collected from West & South show similarity with geniune sample in Pharmacognostical, analysis.
- There were variations in Pharmacognostical study of samples from East and North from geniune standard drug Nagkeshar (*Mesua ferrea* Linn).
- The East sample have clove like shaped fruit bud, odour of *Cinnamommum* spp shows may be from *Cinnamommum* spp. As it was not self collected & market sample was devoid of leaves, flowers or any other identification mark. However it can't be indentified exactly quoted by Botanist.
- The North sample have round shape, dissecting it possess stamens of yellow colour. Considering all this it may be flower bud of flower, as it possess stamens. But from this information we can only say it is adultered but exactly, by which drug is impossible. The flower of *Mammea surangi* are sold in name of Nagkeshar. Thus the sample from north may be flower bud of *Mammea Surangi*, but should be identified taking other factor in account.

References

1. Sharma PV. Ayurveda ka Vaigyanika Ethihas, Rep. ed. Varanasi: Chaukhambha Orintalia, 2008.
2. Chunekar Krishnachandra, Bhavaprakasha Nighantu, Rev. ed. Varanasi: Chaukhambha Bharti Academy, 2010.
3. Acharya Yadavji Trikamji, Charaka Samhita revised by Charaka and Dridabala, with Ayurveda Dipika commentary by Chakrapanidatta, Varanasi: Choukhamba Sanskrit Sansthan, 2011.
4. Acharya Yadavji Trikamji, Sushruta Samhita, with Nibandha Sangraha commentary by Dalhana, 8th Edition, Varanasi: Chaukhambha Sanskrit Sansthan, 2005.
5. Srikantha Murthy KR, Sharangadhara Samhita, translated in English, Choukhambha Orientalia, Varanasi, 6th Edition, 2006.
6. Harishastri Paradakara Vaidya, Ashtangahrdayam, Sarvanga sundari commentary of Arunadatta and Ayurveda rasayana commentary of Hemadri, 9th Edition, Varanasi: Chaukhambha Orientalia, 2005.
7. Brahma Shankara Mishra, Bhavaprakasha, with the Vidyotini Hindi commentary, 8th Edition, Varanasi: choukhambha Sanskrit Sansthan, 2003, 2.
8. Pandit Shivprasad Sharma. Ashtanga Sangraha. 2nd Edition, Chaukambha Sanskrit series, Varanasi 2000.
9. Pandit Hariprasad Tripathi, Harita samhita, 2nd edition, Chaukhamba Sanskrit Sansthan, Varanasi, 2009.
10. Yadunandan Upadhyaya ed. Madhav nidana, 31st ed., Chaukhambha Sanskrit series, Varanasi 2002.
11. Indradev Tripathi ed. Yoga Ratnakara, 1st edition, Chaukhambha Orientalia, 1998.
12. Sharma PV. Classical uses of Medicinal Plants. 1st edition, Varanasi: Chaukhambha Visvabharati Prakashana, 1996.
13. Sharma PV. (editor). Dhanwantari Nighantu. 4th ed. Varanasi: Chaukhambha Orientalia, 2005.
14. Pandey G, Dwivedi RR. (Ed.). Sodhala Nighantu. 1st edition. Varanasi: Chaukhambha Krishnadasa Acadamy, 2009.
15. Sharma PV, Hrudaya Deepaka Nighantu. Siddhamantra Prakasha. 1st edition. Varanasi: Chaukhambha Amarabharati Prakashana, 1977.
16. Tripathi HP (editor). 'Hari' Hindi vyakhya on Madanapala – Madanapala Nighantu. Rep ed. Varanasi: Chaukhamba Krishnadas Academy, 2009.
17. Triphathi I. Dravyagunaprakashika Hindi commentary on Raja nighantu. 2006 ed. Varanasi: Chaukhambha Krishnadas Academy, 2006.
18. Sharma PV. (Ed. & commentator). Kaiyyadeva Nighantu. 2nd edition. Varanasi: Chaukhambha Orientalia, 2006.
19. Krishnashastri R. Navre (Ed.) Nighantu Ratnakara – A compedium of the system of the Hindu medicine, 5th edition. Delhi: Chaukhambha Sanskrit Pratishtan, 2011.
20. Vaidya BG. Nighantu Adarsha Rep.ed. Varanasi: Chaukhambha Bharati Acadamy, 2005, 2.
21. Sharma PV. Priya Nighantu. Rep. Ed. Varanasi: Chaukhamba Surbharati Prakashan, 2004.
22. Bapalal Vaidya, some controversial drugs in Indian medicine, Chaukhambha Orientalia, Varanasi, India, 1982.
23. Kirtikar KR, Basu BD. Indian Medicinal Plants 2ed. Dehradun: Oreintal enterprises 1987, 1.
24. Nadkarni KM. Indian Materia Medica 3rd ed. Mumbai: Bombay popular prakashan, 1.
25. Sharma PC, Yelne MB, Dennis TJ. Database on Medicinal Plants used in Ayurveda, Vol-1 ed. New Delhi: CCRAS, 2001
26. Ayurvedic Pharmacopoeia of India, Part I, 1st ed. New Delhi: Govt. of India, 2007, 2.
27. Kokate CK, Purohit AD, Gokhale SB. Book of Pharmacognosy, Nirali Prakashan, Pune, 17th Edition 1997.