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Physiochemical Standardization of Kushta Nella-Tutia: A Versatile Drug

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ABSTRACT

Introduction: *Kushta Nella-Tutia* has a wide range of Pharmacological actions in Unani system of medicine. It is used both internally as well as externally. In Unani system of medicine, it is commonly used for *Qatil e-deedane-am'a* (Anthelmintic), *Mundamil qurooh* (Healing of wound), *Aatishak* (syphilis), *Juzam* (leprosy), *Qarha asir al indimal* (Indolent ulcers), *Nawasir nafidha* (Fistula).

Methods: *Kushta Nella-Tutia* has been evaluated by using classical, organoleptic and physicochemical tests. The methodology was followed according to the protocol of ASU drugs.

Results: Physiochemical results revealed that *Kushta Nella-Tutia* is Black in color, odorless, lusterless, tasteless and soluble in organic solvents, but insoluble in water and all the physiochemical standards were set.

Conclusion: The present study has provided evidence-based scientifically validated data for the standardization of *Kushta Nella-Tutia* and will serve as a useful tool to minimize adulteration and substitution of *Kushta Nella-Tutia.* The standardization of herbal drugs is very important for quality control. it improves the efficacy and safety of the drug. Physiochemical results of *Kushta Nella-Tutia* will serve as a reference standard for identification in the future and the intern will prevent adulteration and improve the quality, identity, and purity of the drug.

Keywords:

Kushta Nella-Tutia, Herbo-Mineral, Standardization, Unani medicine

Introduction

Literally, Kushta means killed, in Persian [1,2] but technically it means incinerated material containing only oxides of inorganic materials. Neela-Tutia is a mineral origin drug [3]. It is semi-metal derived from copper. It occurs in blue crystalline masses [3,4]. it is prepared by roasting copper pyrites with sulfur [5]. It is dark brown in color, granular in appearance. The color of Tutia resembles to that of the feather of picoke so it is called Neela-Tutia [6]. In English, it is called Verdigris [7]. Externally copper sulphate is applied to indolent ulcers, exuberant granulations, sinuses, fistula in ano and is used in solid or preferably liquid form as the solution (2 grains in an ounce of water) [3,6]. Important formulations in which Neela-Tutia is one of the ingredients are *Kushta Tutia* [8] *Marhum zangar* [9], *Habbe dibbe-atfal* [9], *Manjan mufeed* [9], *Marham sa'afa* 9 *Salaya Tutia* [1], *Koahal Chikni dawa* [9].

Materials and Methods

Procurement of Drug

The drug was procured from the Pharmacy of the National Institute of Unani Medicine Bengaluru. The drug was properly identified by experts in the Reputed Institute Indian Bureau of Mine (IBM) Bengaluru.

Standardization of *Kushta Nella-Tutia*

The sample of *Kushta Nella-Tutia* was subjected to various methods of standardization including Classical, organoleptic as well as physicochemical methods.

Classical Methods

Kushta Nella-Tutia has been tested for various classical tests like Test for lustreless, Floating test, Fineness test, Wall stick test, Lemon test and Curde test [10,11].

Test for lustreness

A small amount of *Kushta* was taken in a Petridish and observed for any lustre in daylight through a magnifying glass [2].

Test for Fineness

A small amount of *Kushta* was taken in between the thumb and index finger rubbed to see that the Kushta has entered into the lines of the finger and easily washed out from the cleavage of the lines [10].

Test for Floating

A small amount of *Kushta* was sprinkled over the still water in a beaker to observe that the particles of Kushta floated over the surface of water or not [12].

Curd Test

A pinch of *Kushta* was mixed with a little amount of curd in a clean and dry Petri dish to observe any colour changes [12].

Lemon Test

A pinch of *Kushta* was mixed with lemon juice in a test tube to observe any color changes [13].

Wall-Stick test

The *Kushta* was examined by throwing on the wall to check whether it sticks on the wall or not [12].

Organoleptic evaluation

The organoleptic evaluation of *Kushta Nella-Tutia* was done to rule out the color, odor, taste etc.

Physiochemical evaluation

The physicochemical evaluation of *Kushta Nella-Tutia* was done by testing Loss of drying at 105ºC in hot air oven, Total ash, Acid insoluble ash, water-soluble ash were also assessed, pH of 1% and 10% solution was observed by digital pH meter. The methodology was followed according to the protocol of ASU drugs [14,15].

Results

Organoleptic characters

Organoleptic characters are important for standardization and proper identification of Herbal drugs. The observations and results for organoleptic characters of *Kushta Nella-Tutia* are presented in Table 1.

Table 1: Organoleptic characters of *Kushta Nella-Tutia*.

S. No.	Properties	Results
1	Color	Black blackish
2	Odour	Odorless
3	Taste	Tasteless
4	Touch	Smooth
5	Appearance	Lusterless

Classical tests

Classical tests are important for proper identification of Herbal-Mineral drugs in general and Kushtas (Calx) in particular. These important classical parameters gave an idea about the purity of Kushtas. Kushta Nella-Tutia was evaluated on classical parameters like Wall stick test, fineness test, floating test, Lemon test, and curd test, the results are depicted in Table 2.

Table 2: Classical tests of *Kushta Nella-Tutia.*

S. No.	Tests	Results
1	Test for lustureness	Negative
2	Floating test	Positive
3	Fineness test	Very fine
4	Wall stick test	Positive
5	Lemon test	Positive
6	Curde test	Positive

Physicochemical standardization

The physiochemical standards are the reliable parameters used for quality, purity, and identity of Mineral drugs. The following Physicochemical constants have been analyzed and results are given in Table 3.

Conclusion

Classical tests like tests for lustureness, floating test, fineness test, curd test, lemon test, and wall stick test are important parameters for standardization of *Kushta*. In the present study, the *Kushta Nella-Tutia* was evaluated physiochemically to set its physiochemical standards. The standards will be used for identification and quality control. For Herbal drugs standardization is an important measure for knowing the quality, identity, and purity of the drug. Standardization can help to maximize productivity, compatibility, Safety, repeatability or quality.

Table 3: Physiochemical characters of *Kushta Nella-Tutia.*

S.No	Parameters	Results (n=3) ± SD
1	LOD at 105ºC	1.53 ± 0.03
2.	Total ash (%w/w)	1.54 ± 0.10
3	Water soluble ash (%w/w)	0.36 ± 0.12
4	Acid insoluble ash	0.46 ± 0.15
5	pH (1%)	6.24 ± 0.01 ,
6	pH (10%)	5.24 ± 0.01
7	Solubility	Soluble in organic solvents, but insoluble in water.

Discussion

The present work has not been reported earlier, the results obtained could be considered as the standard for *Kushta Nella-Tutia* for future studies. Quality assurance is an integral part of all systems of medicine. In the present research work, an attempt has been made to standardize and develop scientific data for identification and Quality control of *Kushta Nella-Tutia*. The physicochemical methods are simple, accurate, rapid, and economic and can be used for routine quality control analysis of Herbal drugs. The Methodology, findings and physicochemical parameters evaluated in this study might be considered as standard parameters of *Kushta Nella-Tutia.*

Conflict of Interest: There are no conflicts of interest.

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References

1. Kabiruddin HM. Kitabut Taklees. New Delhi: CCRUM: YNM: pp. 67-69 .

2. Said M (1960) Hamdard Pharmacopoeia of Eastern Medicine. Karachi. Hamdard Foundation. 22. pp. 234.

3. Nadkarni AK. Indian material medica.7th Edition.Vol 2. Mumbai. Popular prakashan: pp. 52.

4. Kabiruddin HM (2007) Ilmul Advia Nafeesi. New Delhi: Aijaz Publishing House.265. pp. 348-349.

5. Khan Azam HM (2013) Muhit-I-Azam. 1st Edition Urdu translation New Delhi: CCRUM. Vol 2: pp. 94.

6. Ghani N (2010) Khazain-al-Advia. 1st Edition New Delhi: Idarah Kitab al Shifa. 63: pp. 1327-1331.

7. Rehman QA (2003) Israr Seena ba Seena.New Delhi: Idara Kitabus Shifa. pp. 106-108.

8. Ferozuddin HM (2007) Madan-ui-Akseer Dar ilm e Kushtajat. New Delhi :CCRUM. 25: pp. 159.

9. Mustehasan Ali A (2004) Advia Madania. New Delhi: Aijaz Publishing House. pp. 20-21.

10. Tariq M, Chaudhary SS, Imtiyaz S,et al. (2014) Preliminary physicochemical evaluation of Kushta tutia: A Unani Formulation J Ayurveda Intgr Med. 5(3): pp.148-153.

11. Ali MA, Hamiduddin, Zaigham M, Ikram M, et al. (2018) Preliminary physiochemical evaluation of Kushta-e-Zahar mohra.A unique formulation of Unani Medicine, Ancient Sci Life. 37(2): pp. 127-32.

12. Ali MA ,Uddin H, Zaigham M,Ikram M, Ranjan R. Pharmaceutico- analysis StudyKushtae Shangarf Prepared with Jozuba (Myristica fragrans Houtt.) and Phitkari (Alum).Journal of Pharmacy and Bioallied Science; 2018 10 (3):144-58.

13. Mohopatra S, Jha CB (2010) Physicochemical characterization of Ayurvedic bhasma (Swarna makshika bhasma) An approach to standardization. 1(2): pp. 82-86.

14. WHO Library Cataloguing in Publication Data. Quality control methods for Herbal materials. Updated edition 1998.

15. Protocol for testing Ayurvedic, Siddha, Unani Medicine: Govt. of India, Department of AYUSH, Ministry of Health and Family Welfare.