



BASIC PRINCIPLES OF RASASHASTRA-HERBO-MINERAL PREPARATIONS INDIAN PHARMACEUTICS

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ABSTRACT

Protection of host against environmental agents such as pathogenic micro-organisms (bacteria, fungi, and viruses) and chemicals, has been controlled by immune system, thereby preserving the integrity of the body. Adequate nutritional status should be maintained with appropriate intakes of calories, vitamins, minerals to preserve organism defense mechanisms and water that should be continuously provided by a healthy diet. The emergence of new infectious diseases with new pathogenic properties constitutes a serious health issue worldwide. Severe acute respiratory syndrome (SARS) represents one of the most recent emerging infectious diseases, caused by a novel coronavirus member called (SARS-CoV-2), identified in Wuhan, Hubei, China in December 2019, and recognized as pandemic by the World Health Organization (WHO). The nutritional status of each COVID-19-infected patient should be assessed prior undertaking treatments. Nutritional support should be the basis of management of any infected individual. Therefore, preventive measures remain the first priority and strategy to develop throughout proper hygiene, healthy diet and staying home.

KEYWORDS: Nutrition, vitamins, minerals, Immune system, Viral diseases, SARS-CoV-2.

INTRODUCTION

Medicine is the foundation of almost all scientific disciplines, with other treatments such as physiotherapy, acupressure, acupuncture, etc. Discovery of new drugs has a long tradition and is the product of the diligent work of intelligent scholars. This is known that these developments were made on the basis of knowledge, various studies, careful analyses, regular evaluation of results and the strongest rational understanding of all of them. These work has contributed to the development of a variety of standards which have consequently established the foundation of various medical sciences. Rasashastra, a subset of Ayurveda, is one of several advanced varieties that can now be called Indian herbo-mineral pharmaceuticals. Literally, "Rasa" means mercury and "Shastra" means research, and thus, originally, Rasashastra is known to be a mercury school. Rasashastra's accessible literature clearly suggests that mercury is the fundamental cause for the root of this research, while the medicinal usage of metallic-mineral compounds is the key topic of Rasashastra, given the various methods of processing for the treatment of multiple diseases.

Basic principles are those facts which have been repeatedly tested in various ways and are essential to understand related science. It is clear that every science has its own basic principles. Available literature of Rasashastra has few fundamental concepts which are associated with foundation and development of this pharmaco-therapeutical science. The explanation of such principles is not quite simple and is dispersed in numerous ancient classical texts. It is time to revisit these basic concepts in a systematic and informative manner. In the present research, therefore, an effort has been made to carry out a systematic analysis of the core concepts of Rashastra and to explain their distinguishing features. Current classical texts on fundamental concepts have been compiled from the texts of Rasashastra, such as Rasendramangala (8th century AD), Rasendracudamani (12th century AD), Anandakanda (12th century AD), Rasaratnasamuchchaya (13th century AD), Rasendrachintamani (13th century AD), Rasendrasarasamgraha (14th century AD), Rasakamadhenu (17th century AD) and Rasatarangini (20th century AD) etc. Such fundamental concepts have been formulated in conjunction with their logic, importance and interpretation in the context of the present scenario.

OBSERVATION

The comprehensive analysis of Rashastra's classical texts has shown that the following ideas are the fundamental principles of Rashastra.

1. The Lohavada and Dehavada Concept

The refining of low-precision metals into precious metals such as gold by specially treated mercury is classified as Lohavada. The usage of such active mercury to render a safe and long existence is named Dehavada. Rasashastra was originated based on this concept of achieving healthy long life by means of processed mercury which can convert lower metals into gold. According to ancient classical texts both Dehavada and Lohavada were in existence till 13th century AD, but this science was too secreting and known to very few seers. There are several sources available today relating to the processing of copper and lead to silver and gold, but the precise information to achieve performance is missing in the timeline.

2. Concept of ParadaAshtadashaSanskara (eighteen ways of extracting mercury)

There are 18 processing methods of mercury which aimed to remove blemishes and to make mercury such potent that it can be used to achieve the purpose of Dehavada and Lohavada. Of the 18 types of processing, the first five are used to extract blemishes from mercury; the next three are used to improve the effectiveness of mercury; the next eight are linked to the introduction of transformation capacity of mercury to turn some metal into gold; the 17th type of processing is used to check the transformation capacity of mercury and the last one is the administration of mercury of human beings.^[1]

3. Paribhasha Definition (terminology in Rasashastra)

A statement of exact meaning of a word or phrase etc is known as Paribhasha (technical term).^[2] There are 78 different terms mentioned in Rasaratnasamuchchaya.^[3] The words which are cryptic and ambiguous are better understood with the help of Paribhasha. The study of Paribhasha engenders of better comprehension about the science Rasashastra.

4. Concept of Yantra, Musha, Koshthi & Puta (instruments, crucibles, blowers and pits for the incineration of metals/minerals)

Ancient seers of Rashastra also developed numerous tools, crucibles, blowers and pits for the incineration of metals / minerals. Acharya Somadev, author of Rasaratnasamuchchaya have narrated 31 instruments, 17 types of crucible, 4 types of blower and 10 types of pit in 9th and 10th chapter of his treatise. This concept provides guideline for requirement of various apparatus in pharmacy for processing of mercury, metals, minerals and herbal drugs. Apparatus is one of the essential requirements for the preparation of medicines and hence, in order to understand Rashastra and for research and

development in Rashastra, awareness of all these apparatuses is required.

5. Shodhana Theory (purification)

In Rasashastra, metals / minerals and, for some time, some medications of a poisonous nature are commonly found to be used, which are often known to have any poisonous impact. Hence with a view to remove or minimize their toxicity and to make them suitable for further process a number of purification procedures have been found evolved which is known as Shodhana.^[4,5] It should be mentioned here that ayurvedic purification does not imply the processing of 100 per cent metal in its original elemental nature, in addition this process relates to the impregnation of organic molecules in inorganic compounds and to the increase of their bio-accessibility as well as to the removal of undesirable results. The metallic preparations are used in the form of Bhasma (incinerated powder) and Shodhana is first and most important step before preparing their Bhasma. Shodhana of metals is divided in two steps viz Samanya Shodhana (general purification) and Vishsha Shodhana (special purification). Samanya Shodhanais mostly performed by heating the metal up to red hot stage or up to complete melting then quenching for either three or seven times in each liquid media viz Til Taila (sesame oil), Takra (clarified butter), Gomutra (cow urine), Kanji (sour gruel) and Kulattha Kwatha (decoction of Dolichos biflorus Linn) respectively.^[6] Samanya Shodhana, though, is favoured only for metals and not for minerals and toxic plants. Vishsha Shodhana requires a common method of heating or pressing, but the liquid medium is specific for various metals.

6. Marana Definition (incineration)

Metals and minerals are not bio-assimilable in their normal state. We had to be turned into such a fine shape that could be quickly assimilated in the human body, able to heal different illnesses, which with little adverse impact. To accomplish this aim, the principle of Marana (incineration) was invented by the ancient seers of Rashastra. The process of making the metals/minerals into a fine powder by applying required quantum of heat is known as Marana.^[7] In brief, Marana means conversion of metal/mineral into fine nano particles which herbo-mineral, organo-metallic nature and therapeutic potency. In classical texts various methods incineration are mentioned for every metal. These methods can be divided into some categories based on the principle procedure such as incinerated metal prepared after Jarana (open pan frying) process, prepared from Pishti (amalgam), prepared by Lepa (application of layer over metal) method and prepared after open pan frying process followed by Bhavana (levigation) and Puta (incineration cycles) etc. Many times the ancient seers of Rashastra used more than one theory technique. The thorough knowledge of the incinerated processing of some metal by a method in theory allows to explain the processing of certain metals.

7. Concept of Amritikarana (annihilation of dangerous properties of incinerated metals / minerals)

Amritikarana is an essential procedure known as defined in the sense of the Marana method. This is achieved to eliminate the residual harmful effects of incinerated metal / mineral that are likely to linger even after the Marana phase.^[8] Not all incinerated metals/minerals, including Mica, copper and copper containing preparations are needed to make them appropriate for medicinal usage.

8. BhasmaPariksha Definition (Test for incinerated materials)

It is well understood from classical literature that the ancient scholars of Rasashastra were well aware of improperly processed and incompletely prepared incinerated preparations. We then recommended that separate experiments should be carried out to ensure the full development of the drug. Such exams are referred to as BhasmaPariksha. Few essential experiments have been addressed. For every Bhasma, a particular color is indicated. Alteration of different color means that Bhasma is not properly prepared since a certain metallic compound is produced during Bhasma preparation and each chemical compound has a different color. Bhasma must be Nischandra (lusterless) before After proper incineration, luster of metal should not remain if luster is still present, it indicates further incineration.^[9] Varitara test, applied to study lightness and fineness of Bhasma, is floating character of Bhasma on stagnant water surface.^[10] The check is based on the rule of surface tension. Unama Review is a further test of the Varitara Exam. A grain of rice is to be kept carefully on the layer of floated Bhasma. Observe if the grain is rising or falling. If the grain stays as it is on the ground, otherwise Bhasma may be called excellent (prepared properly). Rekhapurnata test means Bhasma should be so fine that it can fill furrows of finger tips. A little amount of Bhasma is rubbed in between index finger and thumb to observe whether particles can fill furrows of finger tips. This test is applied to study fineness of Bhasma. Bhasma particles should be of minimum size for easy absorption and assimilation in the body.^[11] Apunarbhava implies the failure to restore the initial metallic form. For this study, Bhasma is mixed with the same quantity of MitraPanchaka (Abrusprecatorius seeds, honey, ghee, borax and jaggery) and sealed in SaravaSamputa (earthen pots), accompanied by a similar degree of heat used for the preparation of Bhasma and observed for the self-cooling drug.^[12] Lustrous particles in it show presence of free metal, which is indicative of improper incineration. Niruttha is a measure of the failure to restore the metallic form of the Bhasmas. In this study, Bhasma is mixed with a fixed weight of silver leaf, held in earthen pots and a comparable degree of heat is added, and the weight of silver is taken after self-cooling. Increase in the weight of the silver leaf suggests improperly prepared Bhasma.^[13]

9. Bhavana Definition (levigation)

Bhavana is a method in which the substance is totally dissolved in liquid media (herbal oil, decoction, etc.) and compressed until the liquid is fully diluted into the powder.^[14] Bhavana is an important procedure in Marana of metals. It is well known that in order to promote Bhavana, metal will be either in amalgam shape or in powder form. Therefore, the Jarana (open pan) technique is prescribed in the Marana methods of metals that use herbal media for Bhavana. Depending upon different references available in texts, the Bhavana process can be carried out by adopting these two methods.^[15,16] Lavigation method in which the material is mixed with liquid media and ground till the whole material becomes like dough.^[17] The substance is continually combined with individual liquid media and ground for a limited duration of time. The soaking procedure, in which the length of the entire cycle is not specified, so the liquid media is applied to the substance and the whole product will be kept under sunlight throughout the day and as it is in the vessel during the night.^[18] The volume of BhavanaDravya (sum of liquid media) should be taken either as far as the powdered drugs are fully wet,^[19] the substance should be absolutely immersed,^[20] the entire mixture should be turned into flour, or the weight of BhavanaDravya should be equivalent to the amount of substance to be assessed.^[21] Kwatha / Swarasa or some other Dravya used for Bhavana should be equivalent or identical in the properties and strength of BhavyaDravya. This is the fundamental association between a given medium and a specific material.^[22]

DISCUSSION

It is well known that every science has experienced improvements and adjustments produced by researchers in the relevant area. Advances of technologies, modern work focused on current demands can be used as the foundation of developments and improvements in every field of science. Rashastra is no exception to this fact. Achieving redemption was the main aim of ancient Indians and preserving wellness, the quality of life for constant contemplation was a central prerequisite. Therefore, the idea of Lohavada and Dehavada was granted primary importance from the 8th to the 13th century AD. It is known that few seers have achieved success in transforming copper and lead to gold by utilizing refined mercury. However, the study of mercury refining was held very secret and never passed on to the next century, culminating in the utter absence of such amazing information. Good facility and financial help are required for Lohavada and Dehavada study. Different conditions refer to 18 mercury manufacturing processes. Today, such strategies are known to be labor intensive, energy intensive and costly. The first eight forms of manufacturing are feasible and are utilized to some degree. The knowledge of at least the first eight methods of processing is therefore necessary for the comprehension of Rashastra.

Using a common word for a particular method, a category or a common definition is one of the easiest ways to render research both reliable and systemic. Paribhasha, i.e. the language used in Rasashastra, is quite well clarified by Acharya Vagbhat in chapter 8 of his treatise Rasaratnasamuchchaya. The classical description of instruments, crucibles, blowers and pit for incineration of metals/minerals is with the view of ancient knowledge availability of materials. Some development has been made in this area in recent years, including the use of distillation devices in place of Tiryagapatana Yantra, cast iron crucible in place of Vajramusha, electric muffle furnace and the use of liquid petroleum gas in place of Koshthi and Puta, etc. These changes are appropriate and allow hours for large-scale manufacturing, reducing labour costs, energy and large-scale processing of medicines.

It is important to note that certain principles of Rasashastra, such as the concept of purification, the concept of incineration, the concept of Amritikarana, the concept of examination for incinerated materials and the concept of Bhavana, have a special meaning and need to be strictly observed, as per the classical guidance, in order to obtain the required results set out in the Ayurvedic scriptures. The current literature on Rasashastra is a source of comprehensive knowledge for the development of new formulations, since there are several methods for purification, incineration, levigation, etc. and improvements in single drug/medium in either of these processes that alter the therapeutic potential of the final product. While it is evident that knowledge of the fundamental concepts of Rasashastra is necessary for the comprehension, study and advancement of this pharmaco-therapeutic method. Throughout the present research, the dispersed fundamental concepts have been briefly checked and this knowledge should prove essential for the general comprehension of Rasashastra.

CONCLUSIONS

There are eight fundamental rules of Rasashastra, like Lohavada and Dehavada; eighteen mercury refining processes, Rasashastra vocabulary, tools, crucibles, blowers and pits for the incineration of metals/minerals, purification, incineration, Amritikarana, incineration and levitation experiments. Keen's interpretation of these principles with respect to both Ayurvedic and modern science is the secret to learning, as well as to study and advancement in Rasashastra.

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