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CHURNA KALPANA: TRADITIONAL POWDER FORMULATION AND ITS RELEVANCE IN AYURVEDIC PHARMACEUTICS

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Abstract-

The physical body, senses, psyche, and spirit are all included in Ayurveda. Accordingly, the complete health of a healthy individual is described as "a person whose body structure and functions in terms of doshas, dhatus, and malas are in a state of Samya or balance, as well as sensory, mental, and spiritual welfare." Ayurveda provided this definition of health at least a few thousand years ago, and it is superior than the more recent one put forward by the World Health Organization just a few decades ago. We learn more about ourselves and our relationship to nature from Ayurveda. Ayurveda promotes a holistic approach that treats the full person, not just the affected area. Restoring the equilibrium of the disrupted body-mind matrix involves controlling sleep, food, sexual pleasures, altering daily routines and behavior, and administering medication. The extended self-life, palatability, low dose, rapid action, ease of administering, and handling requirements were found to be satisfied by several upkalpanas, including Churna Kalpana. The author of this article aims to provide information about Churna Kalpana, including its benefits and drawbacks as well as its shelf life.

Keywords- Ayurveda, Rashsastra, Churna Kalpana, Powder.

Introduction-

Rasa shastra is a well-known and crucial area of Ayurveda. It focuses on Ayurvedic pharmaceutics (particularly mineral-based drugs) and alchemical knowledge (Lohavedh) with the aim of ending global poverty and promoting physical strength while delaying the aging process. When metals were successfully employed to cure a wide range of illnesses in the pre-Vedic era, Rasa Shastra got its start. When Lord Buddha arrived and the Ahimsa doctrine gained traction, it expanded swiftly. The heyday of Rasa Shastra was during this period. It was acknowledged as a medical field with a separate philosophical foundation by Madhavacharya in his 14th-century book Sarva Darsana Samgraha.[1] Considering the significance of this area in Ayurvedic medicine and the lack of comprehensive assessments on the topic, this review aims to provide a succinct yet detailed summary of numerous factors associated with it.

The field of medicine is constantly changing. The history of medicine and disease is as old as life itself. Numerous elements, such as Agantuka (environmental), Swabhavika (natural), Karmadosha (past sins), Kayikantara (internal agents), and many more, might trigger the arousal of a disease. All cultures have always relied on natural resources to maintain a healthy state. Since the beginning of time, herbal remedies have been utilized to cure a wide range of illnesses. As a result, man's constant pursuit of improving his quality of life requires careful observation and reflection.[2] Man has been on a mission to solve the ultimate puzzle of nature, and while he has made progress in piecing the parts together throughout history, perfection is still elusive.

Bhaishajya Kalpana:

Bhaishajya The words "Bhaishajya" and "Kalpana" are the roots of the word "Kalpana." In this context, Bhaishajya refers to a medication that either cures or manages an illness without causing any negative side effects. Because it would dispel the fear of illness, medicine is known as bheshaja. Bheshaja generally refers to the victory over illness. Actually, it understands two crucial and significant facets of medicine and therapy.[3].

1. **Preventive:** promoting and maintaining a swastha's or healthy person's longevity, vigor, and health
2. **Curative:** The treatment of illness in sick and suffering people
3. The process used to make different formulations is called Kalpana, and the formulation itself is also called "Kalpa." Kalpa is an appropriate form for the body that

promotes physical success. The "Shashty Tatpurush Samas" combine the terms "Bhaishajya" and "Kalpana" to form the phrase "Bhaishajya Kalpana." "Bhaishajya Kalpana" is synonymous with "Aushadh Nirman." The word "aushadhi" comes from "aushaha," which means "the ability to kill the disease," and "dhi," which means "dharayati"—to maintain this quality. The plant that possesses this kind of quality is called "aushadhi."[4]

CHURNAKALPANA:

The powder of one drug or a combination of two or more drugs, powdered separately before being combined uniformly, is referred to as churna. Churna is defined as a finely ground medicine or combination of drugs in the Indian Ayurvedic regimen. The term "churna" means "Pesascurnikaranam," according to Sabda Kalpa Drum.

DEFINITION:

- Churna, as defined by the Indian Ayurvedic formulary, is the substance that is obtained by the process of Pesana (trituration or pounding) and is defined as a fine powder of medicament or drugs[5].
- A single medicine or a combination of two or more drugs that are powdered separately before being homogeneously blended might be referred to as churna.
- Sharangadhara defines Churna as a finely ground dry medication that is filtered through a cloth.
- The synonyms for Churna that have been explained are Rajaha and Ksoda. One Karsa Pramana is the recommended dosage for administration.
- The material that is ground into a fine powder is referred to as chruna by Acharya Kashayapa. This churna is utilized for Anjana, Amavikara, Vrana, and Grahani roga, among other purposes..[6]
- Acharya Kashayapa states that chruna is the term for the material that is ground into a fine powder. This churna is utilized for Anjana, Amavikara, Vrana, and Grahani roga, among other things.
- Churna is a dry powder that has been sifted through a fine cloth.[7].

SYNONYMS:

Rajah, Kshoda, Shushka pista, Adrava kalk

Vernacular names:[8]

English	Powder
Sanskrit	Suska Kalka, Suska Pista, Ksoda, Raja
Hindi	Churna
Kannada	Pudi, Hittu, Churna
Latin	Pulver, Pulverata
Unani	Safaf, Atus, Avadhilana

CLASSIFICATION OF CHURNA:

- According to components

1. Simple

2. Compound

- **According to size:**

Sthula - Coarse powder - for Hima, Phanta, Kasaya, Sieved through no, 20 sieves.

Suksma - Fine powder for Vati, Leha, Nasya, Sieved through No.60 sieve

Atyanta Suksma (Vastra Galita) - Bhasmas, Anjannas, sieved through No.100 sieve (very fine powder).

- **According to structure:**

1. Crystalline

2. Amorphous

- **According to composition**

1. Herbal powder

2. Herbo- mineral

3. Mineralo- metallic powder

- **According to karma**

1. Deepana

2. Virechana etc.

Praksepaka dravyas and their quality:[9]

These are similar to that Kalka Kalpana.

Guda - Equal to that of Churna

Sarkara - Two times of that of Churna.

Hingu - Quantity which does not cause any Utkleda (Nausea) and must be used after frying.

Liquids - Ghee, oil, honey etc. 2 parts

Milk, water - 4 parts.

. **Process of preparation:**[10]

The medications listed in Churna yoga have been cleansed and dried. They are ground into a powder using a mortar and a paste, then sieved through a thin fabric layer. The ideal approach for a prescription with many substances is to powder each drug individually, weigh the necessary amounts, and then combine them together. The medications that will be used in the formulation ought to be extracted from freshly gathered materials. Drugs that are insect-infested, have altered color, taste, or smell, or have been aged by extended storage should be categorically refused.

To intensify or enhance their perfume, the aromatic medications are cooked a little. The medications should be free of any unnecessary substance. The medications listed in the churna yoga are dried and cleansed. A thin layer of cloth (vastragalita) is used to sift them after they have been ground into a powder using a mortar and pestle. The optimum approach for formulations with many constituents is to powder the medications independently, weigh the necessary amounts, and then combine them together. It is advised to treat each medication separately before combining them because some contain more fibrous debris than others.

PREPARATION OF CHURNA: [11]

The general procedure of preparing Churna can be divided in to 3 parts: -

1) **Purva Karma:** The raw medications are let to dry in the sun to create the powder. Cleanliness and hygienic conditions should always be maintained.

2) **Pradhana Karma:** An iron mortar is used to smash the dry medications into powder. The powdered materials are sieved using a clean, fine cloth. It is tied over a vessel and covered with powder. Gentle shaking and spreading are used to create the sieve.

3) **Paschat Karma:** To guard against contamination and atmospheric humidity, the produced powder is stored in hygienic, airtight containers.

Preservation:

- It is best to store churna in an airtight container.
- It is not recommended to store churna produced with a combination of Kshara in an iron container.

METHODS OF ADMINISTRATION: [12]

Churna cannot be taken without any prakshepa and amount some prakshepa is mentioned in classics like:

- Jiggery is on par with Churna.
- Double sugar
- Hingu: A quantity that must be used after frying and does not induce utkleda (nausea).
- Ghrita is double
- Taila: double
- Double honey
- Four times liquid

Important uses of Churna:[13]

Various Ayurvedic literature state that the dose forms of Churna have a number of applications, including-

(1) Churna are applied externally for Lepana in wounds and skin conditions, Avadhulana (sprinkling), and Prasaran (rubbing with the finger on teeth and gums).

(2) Used as a primary medication to treat a variety of illnesses, such as Kalka, Sankhapuspi, Hingvastaka Churna, and Talisadi Churna.Churnas could be used as adjuvants

(a) Trikatu Churna and Suvarna Bhasma

(3) (b) Talisadi Churna with Abhraka Bhasma.

(4) As part of Ksirapaka and Asavarista preparations, churnas are used to make Vati, Avaleha, Arka, Kasaya, Hima, Phanta, and Snehas.

(5) Powders are applied topically for lepana in wounds and skin conditions, and for avadhulana (sprinkling).

Anupana (vehicle) for Churna[14]:

The vehicle used to give churna is called anupana, and old Ayurvedic texts also describe the amount of anupana consumed. If jaggery is added to this powder, the amount of sugar should be doubled, and only enough fried hingu should be added to avoid nausea. Typically, churnas are served with equal parts ghee, honey, or tailas. They should be taken with four times the amount of churna if they are to be taken with decoction, water, milk, etc.

Churna should be taken with suitable anupana and amount anupana is mentioned according to Dosha. It is described as:

1. In Vata Roga: 3 pala (appox. 150g)

2. In Pitta Roga: 2 pala (appox. 100g)

3. In Kapha Roga: 1 pala (approx. 50g)

Preservation[15]:

It is best to store churna in airtight containers. Prepared churna should typically be kept in glass bottles with tight stoppers. Additionally, foil and polythene packaging provide moisture-proof protection. Churna's self-life span is two months, after which it begins to progressively lose its efficacy. As long as it isn't ruined by fungi or dampness, the Churna can last for a year.

Churna should be kept in air tight containers and generally used within two months.

Shelf life[16]:

According to Sharangdhara, shelf life of churna is around two months.

2 Month - Sharangadhara Pu 1/51

3 Month - Yoga Ratnakara Jwara

2 Year - Gazette notification By Dept of AYUSH under D & C Rule 161B

Doses[17]:

General dose of churna is 1 karsha (12g)

Modern concept of churna (Powders) [18]:

Although the pharmaceuticals are created in a variety of physical forms and shapes, many of them are made in some fashion utilizing powders. Powders are the solid dosage form of medication intended for both internal and exterior usage, and they come in crystalline or amorphous form.

Classification of powders[19]:

In general, the powders are divided into the following groups based on how they are administered.

1. Parenteral powders
2. Powders for external use, such as insufflations, teeth powders, and dusting powders.
3. Internal administration powder, which is further divided into two groups.

- **Simple powders:** These powders contain only one ingredient, either in crystalline or amorphous form.
- **Compound powders:** These powders are made up of two or more chemicals that are combined and then separated into different dosages. The solid dose form of medications intended for both internal and exterior usage is called a powder. They come in two different forms: crystalline and amorphous. Even if the medications come in a wide variety of physical forms and varieties, many of them are made in some way with powders.

Advantages of Powders[20] –

One of the special benefits of powders is that the amount of active medication in each dose can vary.

(2) Infants and small children who are unable to chew tablets or capsules can readily get it.

(3) Since disintegration is not necessary, powders will function quickly.

(4) In general, powders are more stable than liquids.

(5) Compared to liquids, powders are less incompatible.

(6) It can be created in a wide variety of dosage forms, including tablets, capsules, reconstitution powders, dusting powders, bulk powders, inhalation powders, and more.

(7) It is more cost-effective than alternative dosing forms.

Disadvantages -

(1) Preparing and packing them takes a lot of time.

(2) They are heavy to move around.

(3) When powders are opened, they may leak.

(4) A well-made suspension could be a good substitute for a tablet or capsule in some situations.

(5) A medication that degrades when exposed to air is not appropriate for powder dissolution.

(6) Powdered medication that is bitter, caustic, and disagreeable cannot be administered.

Techniques for preparing powders:

1. Trituration: This technique involves using a pestle and mortar to rub coarse materials into tiny particles.

2. **Pulverization by Intervention:**

When a substance is soft or gummy and difficult to powder in a mortar, another material is added, and once it has been properly powdered, it is removed. Since it is challenging to powder camphor, for instance, we add a small amount of alcohol to it, powder it, and then let the alcohol evaporate.

3. **Levitation:** A appropriate non-solvent (levitation agent) is added to the powdered material to create a paste. One popular levitation agent is liquid paraffin.

Size separation or sifting[21]:

Size separation, sometimes called sifting, is the process of separating particles based on their size.In order to comminute a crude medicine of plant origin, sifting is required. The coarse, hard material takes longer to grind, while the soft parts of crude pharmaceuticals

reduce in size more quickly. In this situation, the soft material's fine powder is needlessly left in the mill. The fine powder is eliminated through sifting, which is done with sieves. The remaining coarse material is once more placed into the mill for grinding. This type of gritty powder is referred to be gruff or tailing. Until all of the material has been reduced to the appropriate size, this process is repeated. In order to create a homogenous mixture, all of these fractions are finally completely blended.

PARTICLE SIZE OF POWDER[22]:

The powder needs to be a uniform mixture of all the ingredients and have the best possible particle size, which affects not only how quickly it dissolves in the stomach and intestines but also its biological activity and therapeutic effects. Descriptive terms like "very coarse," "the powder must be a homogenous blend of all the components & must be of the most advantageous particle size which not only contributes to its rate of solubility within the stomach & intestine but may influence its biological activity or therapeutic performance," and other similar terms have been used in the U.S. Pharmacopoeia to standardize the particle size of powder. In the U.S. Pharmacopoeia, descriptive phrases like "very coarse" have been used to standardize the powder's particle size.,

- **Coarse powder:** A powder that only 40 percent of its particles pass through a sieve with a nominal mesh aperture of 355 μm, whereas all of its particles pass through one with a notional mesh aperture of 1.70 mm.
- **Moderately coarse powder:** A powder in which forty percent or less of the particles pass through a sieve with a nominal mesh aperture of 250 μm and all of the particles pass through a sieve with a notional mesh aperture of 710 μm.
- **Moderately fine powder:** A powder in which forty percent or less of the particles pass through a sieve with a nominal mesh aperture of 250 μm and all of the particles pass through a sieve with a notional mesh aperture of 710 μm.
- **Fine powder:** A powder in which every particle passes through a sieve with a 180 μm nominal mesh aperture.
- **Very fine powder:** A powder in which every particle is able to pass through a sieve with an average mesh size of 125 μm. All of the powder's particles are supposed to pass through a sieve whose nominal mesh aperture, measured in μm, is equal to the number used to

characterize the powder's fineness. When a number is used to characterize a powder's fineness, the particles in the powder cell are supposed to pass through a sieve whose nominal mesh aperture, measured in μm, is equal to that number.

Discussion-

One of the most basic dosage forms in Ayurveda, Churna Kalpana, exemplifies the effectiveness and simplicity of conventional pharmaceutics. When compared to alternative formulations, the fine powdering of medicinal substances guarantees a quicker start of action in addition to increasing surface area for absorption. Churna has been a commonly used medical practice since ancient times due to its palatability, simplicity of use, and compatibility for patients of all ages.

From a pharmacological standpoint, Churna has benefits such less processing, a longer shelf life (when stored correctly), and the ability to combine several medications in one preparation for synergistic effects. However, problems like contamination, volatile ingredient loss, dose standardization, and low patient compliance because of the bitter taste frequently occur. In order to guarantee churna quality control and standardization, contemporary analytical techniques like spectrophotometry, HPTLC, and microscopy are currently being incorporated.

Additionally, Churna Kalpana is particularly significant in Rasashastra and Bhaishajya Kalpana since it serves as the foundation for numerous other sophisticated formulations, such as Vati (tablets), Avaleha (linctus), and Arishta/Asava (fermented preparations). Its use goes beyond powdered single drugs to include intricate polyherbal compositions like Triphala Churna, Hingvastaka Churna, and Sitopaladi Churna, which are still commonly recommended today. As a result, Churna Kalpana offers opportunities for innovation in drug delivery systems by serving as a bridge between conventional methods and contemporary pharmaceutics.

Conclusion-

Because of its medicinal effectiveness, ease of preparation, and adaptability, Churna Kalpana is a fundamental component of Ayurvedic pharmaceutics. Although it reflects Ayurveda's traditional wisdom, its applicability in the present era rests in its capacity to be standardized, validated by science, and integrated into modern healthcare systems. Churna formulations

can be transformed into more palatable and internationally recognized dose forms by fusing traditional ideas with contemporary pharmaceutical methods. Thus, Churna Kalpana offers a forum for upcoming advancements in evidence-based herbal therapies in addition to conserving the legacy of Ayurvedic medicine.

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