



The Significance of Munjayadi Dravya in Mritasanrakshana Paddhati: A Scientific Exploration of Life-Preserving Elixirs

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Abstract. A well-preserved body is required for the dissection of a human cadaver in order to examine the entire body, which requires both theoretical and practical understanding of human anatomy. Modern science has developed a number of methods for preserving dead bodies, however Acharya Sushruta only cites one in Ayurveda. This method is known as the "Jalnimajjan Paddhati" of Mritsanrakshana. Numerous directions are given in this paddhati, and one of them mentions some of the munjayadi dravyas from which one dravya is employed to wrap the body. Attending paper is about studying the role of these dravyas in delaying the body decaying process. Each and every Munjayadi dravya contains tannin. Tannin has inherent anti-inflammatory, antiviral, antibacterial, and antifungal properties. Due to above properties tannins containing plants helps in delaying the process of decaying of dead body.

Keywords. Sharir, Mritsanrakshana, Munjayadi dravyas, Tannin, Kashaya.

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Introduction

Anatomy is the prime branch of medical science and for being a good bhisaka (doctor) practical and theoretical knowledge of sharir is essential. A good chikitsaka (doctor), in the words of Acharya Sushruta, is one who possesses both sharir and shastra gyan and who develops abilities via observation and review [1]. In his writings, Acharya Sushruta gives various recommendations on how to choose and preserve a human corpse. Acharya Sushruta recommended the preservation technique and cadaver anatomizing method because he thought that anatomization was crucial for medical students to obtain the practical understanding of human anatomy.

Aim and Objectives

1. To research the role Munjayadi dravyas play in the preservation of cadavers as indicated by acharya Sushruta in his literature.
2. To study the Munjayadi dravyas in detail from ayurvedic and modern text.
3. To study the action of Munjayadi dravyas in cadaveric preservation in detail from ayurvedic and modern text.

Method and Material

All literary information was sourced from accessible Samhitas, Granthas, and books. Relevant websites were also consulted. References include earlier papers, dissertations, previous research, published articles, and online resources.

Interpretation

Acharya Sushruta references in his text for body preservation- According to acharya Sushruta human dead body going to be preserved should have all body organs, not died of poison, not died of any chronic diseases, age not above the 100 years

Intestine along with feces should be removed. The deceased body should next be wrapped with either Munja, Valkala (tree inner bark), Kusha (grass portion of Panch Trinamoola), or Shana (hemp), and securely bound before being placed in an iron cage. Then tie that iron cage in

the river which has slow running stream and the place should be away from sunlight, hidden and dark for putrefaction. After seven days take out well putrefied dead body and unwrap it. The dead body should be gently scrubbed with brushes made of Usheer (grass), Bala (hairs), Venu (bamboo), Valkala, Kurcha (grass part of Panch Trinamoola), or any other material of a like nature, before the body with all of the external (Bahya) and internal (Abhyantara) parts, such as the skin, muscles, etc., are fully observed by eyes (Pratyaksha). To observe the intricate details of the body's organs and the many skin layers indicated by Acharya Sushruta, a dead body is slowly scrubbed [2].

I. Munja- Sarkhand

- Botanical name - Saccharum munja Roxb
- Family name – Poaceae
- Rasa (essence) - Madhur (sweet), Tikta (bitter), Kashaya (astringent)
- Chemical constituents – Sugars(root) Phenolic, Flavonoids and Tannin. [3].
- Action – Antioxidant [4].

II. Valkala (5 Plants)

According to bhavprakash Panchavalkala contain 5 plants are Nyagrodha, Udumbara, Ashvatha, Plaksha, Pareesha [5].

1. Nyagrodha - Vat

- Botanical name – Ficus bengalensis
- Family – Moraceae
- Rasa - Kashaya
- Chemical constituents - Tannins, glycosides and flavonoids [6] Saponins, Steroids, Terpenoids, Cardiac glycosides [7].
- Action – Antibacterial, Antifungal, Antiviral [8]

2. Udumbara - Gular

- Botanical name – Ficus glomerata Roxb
- Family – Moraceae

- Rasa - Kashaya
- Chemical constituents – Tannin [9], Saponins, Flavonoids, Steroids, Terpenoids, Cardiac glycosides [10]
- Action – Antiplasmodial, Antibacterial, Antifungal, Larvicidal [11].

3. Ashvatha - Pipala

- Botanical name – *Ficus religiosa*
- Family – Moraceae
- Rasa - Kasaya
- Chemical Constituents – tannins [12], Saponins, Flavonoids, Steroids, Terpenoids, Cardiac glycosides [13]
- Action - Antiprotozoal, Antihelmintic, Antiviral [14]

4. Plaksha - Pakad

- Botanical name – *Ficus lacor* Buch
- Family – Moraceae
- Rasa - katu (hot), Kashaya
- Chemical constituents - Sugar, tannin, an alkaloid, saponin, and sterols [15].
- Properties – Antibacterial, Antifungal, Antiprotozoal [16]

5. Pareesha - Paaraspipal

- Botanical name – *Thespesia populnea* Soland
- Family – Malvaceae
- Rasa : Kashaya
- Chemical constituents - Flavonoids, steroids and sesquiterpenoidal quinines [17]; the bark extracts revealed presence of carbohydrates, glycosides, tannin, flavonoids,
- triterpenoids, phytosterols, proteins and lipids [18].
- Action – antibacterial and antifungal [19].

III. Kusha

- Botanical name - *Desmostachya bipinnata* Stapf
- Family – Poaceae
- Rasa - Madhur, Kashaya
- Chemical constituents – Terpenes(root) [20]; Aerial plant parts contain alkaloids, tannins, flavonoids, steroids, glycosides, and coumarins. sections of underground plants contain glycosides, steroids, flavonoids, coumarins, and alkaloids [21]; Leaves having B-Sitosterol D glucopyranoside
- Action – antibacterial, antioxidant [22].

IV. Shana - Sunn

- Botanical name – *Crotalaria juncea* Linn
- Family – Fabaceae
- Rasa - Amla (sour), Katu, Tikta, Kashaya
- Chemical constituents – A bitter principle 'Corchorin'(seed) [23]; From leaves, compounds such as sugars, steroids, triterpenes, flavonoids, alkaloids, amino acids, saponins, glycosides, tannins, and volatile oils are isolated. Additionally identified from *Crotalaria juncea* were riddelline, seneciophylline, senecionine, trichodesmine, chodesmine alkaloids, galactose-specific lectin, and cardiogenin 3-O- β -d-xylopyranoside.
- Action – antioxidant, antibacterial, antifungal. Its fibers are stronger when wet than when dry, and they are somewhat resistant to mildew, dampness, and microorganisms in salty water [24].

Tannins

Tannins are polyphenolic substances found in the plant world that have various chemical structures depending on where they were produced. Condensed and hydrolysable tannins are the two kinds. Condensed tannins are made up of flavanol units, whereas hydrolysable tannins are made up of a sugar molecule—typically glucose joined to phenolic acids [25]. The collagen proteins in animal skins can be precipitated and bound by condensed tannins and hydrolysable tannins. As a result, the putrefaction of the hide is delayed and it becomes leather [26]. Due to tannins' antimicrobial properties, they attach to the proteins in the skin and prevent putrefaction. Collagen, the primary constitutive protein of skin, has chemical linkages built amongst itself that account for this. It functions as an antioxidant, antiviral, anthelmintic, antimicrobial, and antiparasitic [27].

Discussion

Studying in depth, all the Munjayadi dravyas contain many properties which have significant effect in putrefaction. In Mritsanrakshana paddhati acharya Shusruta has mentioned to wrap the dead body from any one of the Munjayadi dravyas for preservation of body. The reason behind to wrap the cadaver is not only to protect cadaver from fish, herbivores animals but also the prime intention to delay and to have simultaneous decomposition. Munjayadi dravyas have tannin in it which have a specific property when applied over the cadaver. It unites with one or more protein molecules of dead matter and forming large cross-linked complexes insoluble compound which resist the action of water and delayed putrefaction of the dead body. Tannin is the natural antioxidant, antiviral, antibacterial, antiparasitic and antifungal and has astringent, antiseptic and toning properties. Due to above properties tannins delay enzymatic activity in cadaver. All the Munjayadi dravyas have one common rasa i.e Kashaya rasa which has absorbent, wound healing, retaining, scraping properties, not easily digestible, cleanses the blood, has cold potency, dries up the moisture and fat, hinders the digestion, dry and cleanses

the skin too much. The fibres of Munjayadi dravyas specially of Shana are strong and resistant to mildew, moisture and microorganisms, which is effective in protecting the layer of skin from decaying and keep it intact in the body.

Conclusion

According to Acharya Sushruta, the Mritsanrakshana Paddhati [method of dead body preservation] has a scientific foundation at each and every step of preservation, such as wrapping the body in Munjayadi dravyas having antioxidant, antibacterial, antimicrobial, and astringent properties act as preservatives which delay its decomposition. Tannin is the main component present in Munjayadi dravyas which delaying the decomposition of cadaver.

Compliance with ethical standards Not required.

Conflict of interest The authors declare that they have no conflict of interest. **Financial support and sponsorship** None

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