



## Review Article

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### A REVIEW ON TRIMADA CHURNA: AN AYURVEDIC POLYHERBAL FORMULATION

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#### ABSTRACT

Ayurvedic medicine, originating in India thousands of years ago, is considered the oldest medical system globally, known for its use of polyherbal drugs and formulations. Among its various dosage forms, Panchavidha kashaya kalpana (Fundamental or Basic preparations) stands out, with churna kalpana being a subsidiary of kalka kalpana (kalka bheda). Churna, a fundamental concept in ayurvedic pharmaceuticals, is extensively utilized for medicinal purposes and the creation of other formulations. Ayurvedic texts provide detailed guidelines for the preparation and shelf life of these formulations. As the most basic and commonly recommended ayurvedic medicine, churna is easily prepared. Utilizing plants to improve gut health is a time-honoured practice in ayurveda, with Trimada churna being a well-known remedy for conditions like medovridhi (obesity), agnimandya (weakened digestive fire), and ajeerna (indigestion).

**Keywords:** Trimada, Churna, Powder, Vidanga, Mustaka, Chitraka.

#### INTRODUCTION

Ayurveda, an ancient system of medicine originating from India, employs a variety of formulations to treat diverse ailments.<sup>1</sup> Among these formulations, churna kalpana, or the preparation of medicinal powders, holds a prominent place due to its simplicity, efficacy, and ease of administration.<sup>2</sup> Churnas are fine powders made from dried herbs and are renowned for their rapid action and ease of absorption in the body.<sup>3</sup>

This article reviews the traditional practice of churna kalpana with a specific emphasis on Trimada churna. Trimada churna is a classical ayurvedic formulation comprising of equal parts of Vidanga (*Embelia ribes*), Mustaka (*Cyperus rotundus*) and Chitraka (*Plumbago zeylanica*).<sup>4</sup>

Vidanga is renowned for its anthelmintic, carminative and antimicrobial properties, rendering it a valuable agent in managing intestinal parasites and digestive disturbances (Bhavaprakasha Nighantu).<sup>5</sup>

Mustaka has been traditionally utilized for its digestive, anti-inflammatory and diuretic effects, often employed to alleviate gastrointestinal disorders and enhance metabolic function (Charaka Samhita).<sup>6</sup>

Chitraka is revered for its potent digestive and stimulant properties, commonly used to treat conditions like indigestion, flatulence and sluggish metabolism (Sushruta Samhita).<sup>7</sup>

The synergistic action of Vidanga, Mustaka and Chitraka makes Trimada churna a highly effective remedy for managing digestive disorders, metabolic imbalances and other health issues.<sup>8</sup>

This review aims to consolidate existing knowledge on Trimada churna, providing a comprehensive understanding of its significance in ayurvedic medicine. By examining the historical context, traditional methods of preparation, and modern scientific evaluations, this article seeks to underscore the enduring relevance and therapeutic potential of Trimada churna in contemporary healthcare.

#### Traditional Connotation of Trimada Churna

According to Charaka Samhita, Trimada churna is recommended for Ajeerna (indigestion), Adhmana (bloating), and Krimi (intestinal parasites). Additionally, it enhances digestive function and provides relief from nausea.<sup>9</sup>

Ashtanga Hridayam extols Trimada churna as an alchemical remedy against gas, functioning as an Anulomana (carminative), to expel gastric gas. This effectively alleviates Vataja anaha (flatulence and the discomfort due to gas).<sup>10</sup>

According to Bhavaprakasha, Trimada churna is beneficial in managing Aruchi (anorexia) and Agnimandya (weakened digestive fire). Furthermore, it stimulates appetite and enhances digestive function.<sup>11</sup>

According to Rasaratna Samuccaya, Trimada churna is highly effective in alleviating Chhardi (nausea and vomiting), particularly in cases of motion sickness and pregnancy related nausea.<sup>12</sup> The Ayurvedic pharmacopoeia recognizes Trimada churna as a renowned formulation for digestive issues, including Agnimandya (indigestion), Adhmana (bloating), and those annoying Krimi (intestinal parasites).<sup>13</sup>

**Drug Evaluation and Appraisal**

**Table 1: Vidanga (*Embelia ribes*)**

Rasa Panchaka		C.S. <sup>27</sup>	S.S. <sup>28</sup>	A.H. <sup>29</sup>	B.N. <sup>30</sup>	R.N. <sup>31</sup>	K.N. <sup>32</sup>	D.N. <sup>33</sup>	Y.R. <sup>34</sup>	N.R. <sup>35</sup>	C.D. <sup>36</sup>
Rasa	Katu	+	+	+	+	+	+	+	+	+	+
Guna	Laghu	+	+	+	+	+	+	+	+	+	+
	Ruksha	+	+	+	+	+	+	+	+	+	+
Veerya	Ushna	+	+	+	+	+	+	+	+	+	+
Vipaka	Katu	+	+	+	+	+	+	+	+	+	+

**Karma**

Shirovirechana, Nadibalya, Dantaroga, Deepana, Pachana, Anulomana, Krimighna, Arshoghna, Raktashodhaka, Mootrajanana, Chhardi nigrahana, Varnya, Rasayana.<sup>14</sup>

**Prayoga**

Shiroroga, Apasmara, Krimidanta, Dantashoola, Agnimandya, Ajeerna, Chhardi, Udarashoola, Adhmana, Arsha, Krimi, Kamala, Raktavikara, Mootrakrichha, Kushtha, Charmaroga, Dhatukshaya.

**Table 2: Nutritional value of fruits of Vidanga (*Embelia ribes*) in % or per 100gm.**<sup>37-39</sup>

Component	Percentage
Carbohydrates	45.6%
Fiber	3.4%
Protein	2.5%
Fat	0.5%
Vitamin C	2.5% of DRI
Vitamin B1 (Thiamine)	3.3% of DRI
Vitamin B2 (Riboflavin)	1.7% of DRI
Vitamin B3 (Niacin)	2.5% of DRI
Calcium	12% of DRI
Phosphorus	4.4% of DRI
Iron	7.5% of DRI
Moisture	10.3%

Note: DRI (Daily Recommended Intake) values are based on average adult requirements and may vary depending on individual needs and circumstances.

**Table 3: Mustaka (*Cyperus rotundus*)**

Rasa Panchaka		C.S. <sup>40</sup>	S.S. <sup>41</sup>	A.H. <sup>42</sup>	B.P. <sup>43</sup>	C.D. <sup>44</sup>	Y.R. <sup>45</sup>	K.N. <sup>46</sup>	R.N. <sup>47</sup>	D.N. <sup>48</sup>	M.N. <sup>49</sup>
Rasa	Tikta	+	+	+	+	+	+	+	+	+	+
	Katu	+	+	+	+	+	+	+	+	+	+
Guna	Laghu	+	+	+	+	+	+	+	+	+	+
	Ruksha	+	+	+	+	+	+	+	+	+	+
Veerya	Sheeta	+	+	+	+	+	+	+	+	+	+
Vipaka	Katu	+	+	+	+	+	+	+	+	+	+

**Karma**

Twagdosahara, Shothahara, Lekhana, Stanyajanana, Medya, Mootrala, Nadibalya, Deepana, Pachana, Grahi, Trishnanigrahana, Krimighna, Kaphaghna, Raktaprasadana, Sangrahaka, Garbhashayasankochaka, Stanyashodhana, Jwarghna, Balya, Vishaghna.<sup>15</sup>

**Prayoga**

Twakaroga, Shotha, Medo vridhhi, Mastiska roga, Mootraghata, Agnimandya, Ajeerna, Trishna, Krimiroga, Atisara, Daurbalya, Stanyadushti, Jwara, Visha roga.

**Table 4: Nutritional value of tubers of Mustaka (*Cyperus rotundus*) in % or per 100gm**<sup>50</sup>

Component	Percentage
Carbohydrates	45.6%
Fiber	12.1%
Protein	6.3%
Fats	1.2%
Moisture	10.4%

**Table 5: Chitraka (*Plumbago zeylenica*)**

Rasa Panchaka		C.S. <sup>51</sup>	S.S. <sup>52</sup>	A.H. <sup>53</sup>	B.P. <sup>54</sup>	C.D. <sup>55</sup>	Y.R. <sup>56</sup>	K.N. <sup>57</sup>	R.N. <sup>58</sup>	D.N. <sup>59</sup>	M.N. <sup>60</sup>
Rasa	Katu	+	+	+	+	+	+	+	+	+	+
Guna	Laghu	+	+	+	+	+	+	+	+	+	+
	Ruksha	+	+	+	+	+	+	+	+	+	+
	Teekshna	+	+	+	+	+	+	+	+	+	+
Veerya	Ushna	+	+	+	+	+	+	+	+	+	+
Vipaka	Katu	+	+	+	+	+	+	+	+	+	+

**Karma**

Lekhana, Visphotajanana, Uttejaka, Madaka, Deepana, Pachana, Pittasarakha, Grahi, Krimighna, Raktapittakopaka, Shothahara, Kaphaghna, Kanthya, Garbhashaya sankochaka, Garbhasravakara, Vajikarana, Swedajanana, Jwaraghna, Rasayana.<sup>16</sup>

**Prayoga**

Medo vridhhi, Vishphota, Agnimandya, Ajeerna, Atisara, Krimiroga, Shotha, Kapha roga, Garbhashaya vikara, Swedaja, Jwara, Dhatukshaya.

**Table 6: Nutritional value of root bark of Chitraka (*Plumbago zeylenica*) in % or per 100gm**<sup>61</sup>

Component	Percentage
Carbohydrates	63.2%
Fiber	4.8%
Protein	3.4%
Fats	0.8%
Moisture	11.6%

**A Deliberation of Churna Kalpana**

The various types of kalpanas, such as swarasa and kalka, are referenced in the vedas and samhitas. However, this study focuses specifically on churna kalpana. Churna is extensively detailed in all samhitas, and Charaka outlines 32 siddhatam pradehas exclusively utilized through churna kalpana. Within the panchavidha kashaya kalpana (Fundamental or Basic preparations) framework, kalka receives significant emphasis. Notably, churna and kalka kalpanas share similarities, as evidenced by “shuska kalka” (Dried mass) being a synonym for churna. Charaka frequently references both in relation to various health issues.

Acharya Sushruta emphasizes the importance of churna kalpana across various treatment modalities. Both the Ashtanga Samgraha and Ashtanga Hridaya demonstrate the widespread application of churna kalpana in treating numerous medical conditions. Notably, the utilization of churna kalpana has been increasingly prominent over time.<sup>17</sup>

Churna can be prepared using the powder of a single drug or a combination of two or more drugs, which should be individually powdered and then thoroughly mixed.<sup>18</sup>

According to the Shabda Kalpa Drum, the term churna refers to the substance obtained through peshana karma, a process of trituration or pounding.<sup>19</sup>

Atyanta Shuskam Yad dravyam Supistam vastragalitam Tat  
syaad churna raj kshodah tan maatra karsha sammita  
(S.M.K. 6/1)

Acharya Sharangdhara defines churna as a fine powder prepared from completely dried herbs or medicinal substances, which are then sifted through a cloth filter.<sup>20</sup>

Acharya Kashyapa defines churna as a substance that is ground into a fine powder.

**General Method of Preparation**

**Selection of herbs:** Begin by selecting high-quality herbs that are suitable for the intended purpose of the churna, taking into consideration the properties and actions of each herb as described in classical ayurvedic texts.

**Cleaning and Drying:** Clean the selected herbs thoroughly to remove any dirt, debris or impurities. Next, dry the herbs completely in a well-ventilated area. Drying herbs serves two purposes: enhancing shelf life and preventing microbial contamination.

**Grinding:** Once the herbs are completely dried, grind them into a fine powder using either traditional pounding equipment (Udukhalva yantra) or a modern pulveriser, separately. The grinding process requires careful attention to achieve uniform particle size, crucial for ensuring the effectiveness and consistency of the churna.

There is a sound rationale for grinding each drug separately, as different drugs exhibit varying levels of hardness, categorized as mridu (soft), madhyama (medium), and kathina (hard). Grinding them together can lead to inconsistencies, as softer drugs are pulverized first, while harder ones remain intact. This discrepancy affects the proportion of ingredients specified in the formulation during sieving. Furthermore, drugs with volatile properties risk evaporation or damage, whereas harder substances can be uniformly powdered.

**Sieving:** Pass the powdered herbs through sieves of varying sizes to remove coarse particles and achieve a smooth texture. This step ensures the desired fineness and uniformity in the churna, enhancing its digestibility and bioavailability.

**Mixing:** When formulating churna with multiple herbs, combine them in the specified proportions as outlined in classical ayurvedic texts or under the guidance of an experienced vaidya. Proper mixing ensures each dose of churna contains a balanced combination of herbs, optimizing therapeutic effectiveness.

**Storage:** Store the prepared churna in clean, airtight containers made of materials such as glass or food-grade plastic. To preserve quality and potency, protect the churna from exposure to moisture, sunlight, and air. Label each container with the name of the churna, its ingredients, preparation date, and dosage instructions.

**Shelf Life**

Maasdwayaat tathaa churnam hinveeryatvamaapnuyaat  
(S.P.K. 1/51)

2 months according to Sharangdhara.<sup>21</sup>

2 years according to gazette notification, shelf life of ayurvedic dosage forms from Government of India in 2016.<sup>22</sup>

**Dose**

Tan maatraa karsa sammitaa  
(S.M.K. 6/1)

General dose of churna is 12 grams.

**Powder - A Modern Pharmaceutical Loom of Churna**

Powders are solid forms of medication suitable for internal and external applications, existing in either crystalline or amorphous states. Medications come in various physical forms and shapes, but many are ultimately manufactured using powders in some capacity.<sup>23</sup>

**Concept of Size Reduction:** There are four primary methods of size reduction: Cutting, Compression, Impact, and Attrition. Cutting utilizes sharp blades and can be performed on a small scale with a knife or on a large scale with a cutter mill. Compression involves crushing materials using pressure, typically in roller mills. Impact entails striking materials with high-speed objects or surfaces, such as in hammer mills, which are suitable for rapid grinding of various materials. Attrition employs

shear forces, subjecting material through pressure, often through roller mills. Combined Impact and Attrition methods, including ball mills and fluid energy mills, are employed for producing fine powders.<sup>24</sup>

**Factors Affecting the Size Reduction:** Size reduction is influenced by several factors, including Hardness, Toughness, Abrasiveness, Stickiness, Softening Temperature, Moisture content, Physiological effects, required purity, feed-to-product size ratio and Bulk density.

Hardness, assessed using Moh's Scale (ranging from 1 to 10), indicates how difficult a material is to deform or break; higher values signify harder substances.

Toughness, often influenced by moisture levels, can be enhanced when materials are treated with cryogenic liquids, such as liquid nitrogen.

Abrasiveness, often associated with hard materials, can lead to contamination of the final powder due to wear and tear on grinding tools, resulting in metal particle shedding.

Stickiness can cause materials to adhere to grinding surfaces or screens, potentially requiring completely dry condition or the addition of inert materials to facilitate the process.

The softening temperature is crucial because many size reduction methods produce heat, potentially softening materials. Effective dry grinding typically requires moisture content below 5%, whereas wet grinding usually necessitates levels exceeding 50%. The physiological impacts of potent substances, such as hormone drugs, necessitate the use of enclosed mills to prevent dust dispersion and operator safety.

Required purity is crucial, as some size reduction equipment can introduce contamination. Moreover, the feed-to-product size ratio generally indicates that machinery designed to produce finer materials requires smaller feed sizes.

Lastly, bulk density significantly impacts machine output, as batch mills are volume-dependent, whereas continuous processes rely on weight.<sup>25</sup>

### Classification of Powders

Based on the method of administration, powders are divided into two main types:

Powders for external use, such as dental powders, dusting powders, and insufflations.

Powders for internal use, which are further categorized into two groups:

- Simple Powders - these contain only a single ingredient, either in crystalline or amorphous form.
- Compound Powders - these consist of two or more substances that have been uniformly mixed together.

### Merits of Churna (Powder)

- Fixing doses is simpler when the medications are in a powdered state.
- Powders are easier to transport than liquid dosage forms.
- Compared to liquids, powders exhibit greater stability, because chemical reactions occur more readily when drugs are in a liquid state.
- The chances of incompatibility are lower with powders than with liquids.
- Powders tend to be more cost-effective compared to other forms of medication.
- The manufacturing process for powders is straightforward and uncomplicated.
- When powders are very fine, their onset of action is faster than other solid dosage forms, such as tablets, capsules, and pills.

### Demerits of Churna (Powder)

A part from the previously mentioned benefits, there are also some drawbacks associated with Churna (powder). These include:

- Medications that degrade upon exposure to environmental conditions are unsuitable for presentation in powder form.
- Substances containing volatile compounds are not appropriate for dispensation as powders.
- Deliquescent and hygroscopic drugs cannot be effectively dispensed as powders.
- Nowadays, individuals are quite particular about the taste of medications, yet many powders can be unpalatable.
- Consequently, powdered forms of medication are not very attractive to children.

Nonetheless, due to its effective properties and the overall formulation, Churna Kalpana continues to be a significant dosage form in Ayurvedic medicine.

### Important Uses of Churna

According to various Ayurvedic scriptures, the Churna form of medication has multiple applications, such as:

- Churnas are applied externally for Pratisaran (rubbing over teeth and gums with a finger), Avadhulana (sprinkling), and Lepana in treating wounds and skin conditions.
- They serve as primary remedies in addressing numerous ailments within the Ayurvedic medical system, for instance, Talisadi Churna, Bhallataka Churna, Rasayana Churna, and Shankhpushpi Kalka.
- Churnas may also act as an adjuvant, such as Swarna Bhasma combined with Trikatu Churna and Abhraka Bhasma used with Talisadi Churna.
- Churnas are utilized to formulate various preparations, including Vati, Avaleha, Arka, Kasaya, Hima, and Phanta.<sup>26</sup>

### DISCUSSION

Traditional ayurvedic medicine emphasizes the therapeutic efficacy of medicinal substances, with ancient practitioners relying on their deep knowledge of Dravyaguna Shastra (The science of Medicinal properties) and Bhaishajya Kalpana (The art of medicine preparation). This foundational understanding enabled them to craft effective remedies through careful preparation. However, modern ayurvedic practice faces significant challenges, including the demands of fast-paced lifestyles, population growth, and industrialization. These factors complicate the standardization of Ayurvedic medicines, creating discrepancies in quality and consistency. Unlike Western medicine, which adheres to strict regulatory frameworks, Ayurveda currently lacks universally accepted guidelines for the standardization and validation of its products.

Trimada churna exemplifies the potential of ayurvedic formulations, being widely utilized for a range of conditions such as bloating, indigestion, and intestinal worms. Its applications in alleviating digestive issues and related symptoms underline the importance of validating its effectiveness. To bridge the gap between traditional practices and modern medical standards, it is crucial to undertake rigorous clinical trials. These trials would provide the scientific validation necessary to demonstrate the therapeutic benefits of Trimada churna, ensuring its place in contemporary healthcare.

### CONCLUSION

The integration of traditional Ayurvedic knowledge with modern scientific validation is essential for the effective use of remedies like Trimada churna. As ayurveda navigates the complexities of today's healthcare landscape, establishing standardized protocols

for its medicinal products is vital. Conducting well-controlled clinical trials will not only affirm the efficacy of ayurvedic treatments but also align them with contemporary medical practices, enhancing their acceptance and reliability. This approach will help preserve the rich heritage of Ayurveda while ensuring that its therapeutic benefits can be confidently recommended to patients.

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