



BILAYER TABLETS IN AYURVEDA -A NOVEL DRUG DOSAGE FORM

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Abstract

Ayurveda, the ancient system of medicine originating from India, has been gaining popularity worldwide for its holistic approach to healthcare. Ayurvedic formulations are known for their use of natural ingredients and unique dosage forms. However, as modern medicine evolves, so Ayurveda must meet the demands of contemporary patients. One promising advancement in Ayurvedic dosage forms is the development of bilayer tablets. These tablets offer numerous advantages, including enhanced efficacy, controlled release, and improved patient compliance. This article will explore the need for bilayer tablet modification in Ayurvedic dosage forms by incorporating both herbal and rasa drugs (metallic and mineral drugs) and its potential benefits which brings to this traditional system of medicine.

Keywords: Ayurveda, Bilayer tablets, Tablets, Dosage forms, Herbal drugs, Rasa medicines, Novel drug, Modification

Introduction

Oral administration is the most prevalent and preferred method of drug administration. It is widely recognised due to its ease of administration, self-medication, patient compliance, and versatility in terms of accessible dosage forms. Tablets are the most convenient oral dosage form available and are chosen by both patients and clinicians. Bilayer tablets are a pharmaceutical dosage form commonly used in modern medicine. They consist of two layers, typically designed to release drugs at different rates or for different purposes.¹⁻³ Bi-layer tablets are appropriate for the sequential release of two combined drugs. In Sustained-release tablets one layer contains the loading dose, and the second layer contains the maintenance dose.⁸ For antihypertensive, diabetic, anti-inflammatory, analgesic, and antibiotic drugs, the use of bi-layer tablets is considerably different, as these drugs frequently require combination therapy to be effective⁴

Types of bilayer tablets^{5,6}

Bilayer tablets may be identical (homogeneous) or dissimilar (heterogeneous).

Homogenous type: Bilayer tablets having same drug in two layers but drug release profile is different from one another. These bilayer tablets contain one layer of the immediate release and second layer is extended release manner

Heterogeneous type: Bilayer tablet is suitable for continuous release two drugs in combination, separate two incompatible substances.

To produce a quality bi-layered tablet, in a validated and GMP way, it is important to select a bi-layer tablet press capable of:

- High yield.
- Preventing capping and separation of the two individual layers that form the bilayer tablet.
- Preventing cross-contamination between the two layers.
- Producing a clear visible separation between the two layers.
- Accurate and individual weight control of the two layers

Here are some potential scenarios where bilayer tablets might be relevant in Ayurveda:

Modified Release: In Ayurveda, certain herbal formulations are taken multiple times a day to ensure that the active ingredients are available in the body at specific times. A bilayered tablet could be designed to release the active ingredients in two stages, mimicking the traditional dosing regimen.

Combination Therapy: Ayurvedic treatments often involve a combination of herbs and minerals. A bilayer tablet could be used to combine two different formulations that are more effective when taken separately, preserving their individual properties until they are needed.

Reducing Interactions: In Ayurveda, certain combinations of ingredients are avoided due to potential interactions. Bilayer tablets could be used to separate ingredients that should not interact with each other.

Enhancing Compliance: Bilayer tablets can simplify dosing regimens, which may improve patient compliance with Ayurvedic treatments.

Traditional Ayurvedic formulations often consist of herbal extracts, minerals, and other natural ingredients, each chosen for their specific therapeutic properties.

Discussion

As Ayurveda gains recognition and acceptance worldwide, it faces the challenge of adapting to modern healthcare practices and patient preferences. Many individuals today prefer the convenience of tablets or capsules over traditional dosage forms. Additionally, the precise dosing and controlled release of active ingredients provided by modern dosage forms are crucial for ensuring consistent therapeutic outcomes.

In Rasashastra medicines are prepared out of metallic and mineral drugs combined with medicinal herbs to enhance their therapeutic effects and reduce potential side effects. Traditional Ayurvedic dosage forms include powders, decoctions, oils, and pills. These dosage forms have served the Ayurvedic community for centuries and have proven their efficacy. However, they do have limitations, such as taste, odor, and patient compliance issues, which may hinder their acceptance in today's fast-paced world. Hence it is a need of hour to modify the Ayurvedic dosage forms like churna, vati etc dosage forms into bilayer tablet a novel drug dosage form in Ayurveda by combining herbal drugs and mineral drugs.

However, it's important to note that introducing novel dosage forms like bilayer tablets into Ayurveda should be done carefully, and in accordance with Ayurvedic principles and philosophy. Ayurveda places a strong emphasis on the holistic approach to health and considers factors like the patient's constitution (Prakriti) and current imbalance (Vikriti). Ayurvedic practitioners can tailor Rasa medicines to the specific needs of a patient, taking into account their constitution (Prakriti) and the imbalances (Vikriti) they are experiencing. This level of individualized treatment is a hallmark of Ayurveda. Rasa medicines are often used for a wide range of conditions, including chronic diseases, fever, digestive disorders, and respiratory issues. Their versatility makes them valuable in Ayurvedic practice. Ayurveda operates on the principle of balancing the three doshas (Vata, Pitta, Kapha) in the body. Rasa medicines can help in this process by either pacifying an aggravated dosha or increasing a depleted one, depending on the condition. The processing of metals and minerals in Rasa medicines makes them more bioavailable and easier for the body to absorb and utilize. Some Rasa medicines are believed to have long-lasting effects, helping to address the root cause of chronic conditions. Rasa medicines are often used for a wide range of conditions, including chronic diseases, fever, digestive disorders, and respiratory issues. Their versatility makes them valuable in Ayurvedic practice.

Introducing novel drug delivery systems like bilayer tablets may require thorough research and validation to ensure safety and efficacy in accordance with Ayurvedic principles. Collaborations between Ayurvedic practitioners and modern pharmaceutical experts may be necessary to develop and validate such innovations in Ayurveda. The Advantages of Bilayer Tablets in Ayurveda are as follows:

Dual Action: Bilayer tablets offer the opportunity to combine two different formulations in a single tablet. This is especially beneficial in Ayurveda, where treatments often involve multiple ingredients working synergistically. For example, a bilayer tablet can contain a calming formula in one layer to balance Vata dosha and a cooling formula in the other to pacify Pitta dosha.

Controlled Release: Ayurvedic medicines often require sustained release to maintain therapeutic levels of active ingredients in the body. Bilayer tablets can be designed to release the ingredients at different rates, ensuring a prolonged and steady effect. This is particularly advantageous in chronic conditions that require long-term treatment.

Improved Patient Compliance: The taste and odor of traditional Ayurvedic formulations can deter some patients from adhering to their treatment regimen. Bilayer tablets provide a convenient, tasteless, and odorless alternative, increasing patient compliance and improving overall treatment outcomes.

Precise Dosing: Modern pharmaceutical techniques allow for precise dosing, ensuring that each tablet contains an accurate amount of active ingredients. This eliminates the guesswork associated with traditional dosage forms like powders and decoctions.

Enhanced Stability: Bilayer tablets can protect sensitive ingredients from degradation, preserving their efficacy over a longer period. This is crucial for maintaining the quality of Ayurvedic medicines, many of which are heat- and light-sensitive.

Conclusion

Incorporating bilayer tablets into Ayurvedic dosage forms is a step towards modernizing this ancient system of medicine while preserving its holistic principles. These tablets offer numerous advantages, including enhanced efficacy, controlled release, improved patient compliance, precise dosing, and enhanced stability. However, it's important to strike a balance between modernization and preserving the core principles of Ayurveda, such as the use of natural ingredients and personalized treatments. With careful formulation and standardization, bilayer tablets can help Ayurveda reach a wider audience and offer more accessible and effective healthcare solutions in the modern age.

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