WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

A COMPARISON OF TRADITIONAL ORAL SOLID DOSAGE FORMS AND ORODISPERSIBLE TABLETS

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ABSTRACT:

Oral drug administration is the most common method because it is practical, inexpensive and easy for patients. Tablets and capsules have long been used in treatment because they are stable, easy to make, and allow for accurate doses. Nevertheless, these forms can be difficult for some people, such as children, big adults, or anyone who has trouble swallowing. To help these groups, Orodispersible Tablet (ODT) were developed. Odts dissolve quickly in the mouth and do not require water, making it easy to take and improve them how well the patients stick to their treatment. This review sees how ODT and regular tablets vary how they are made, how they break and dissolve, how they work in the body, how to use patients, their stability, rules for their use, and their medical application. Orodispersible tablets (ODTs) provide advantages including rapid onset of action, enhanced patient compliance, and increased acceptability among specific populations. However, ODTs are limited by factors such as restricted dosing capacity, structural fragility, susceptibility to moisture, and higher manufacturing costs. In contrast, conventional tablets are advantageous for administering high-dose medications, offer greater cost-efficiency, and demonstrate superior long-term stability. The selection between ODTs and traditional tablets should be guided by the pharmacological properties of the drug, patient demographics, and defined therapeutic goals.

KEYWORDS: Orodispersible tablets, standard tablets, oral medication administration, adherence to treatment, drug absorption, dissolution, shelf life

INTRODUCTION:

Oral administration is the most common way to deliver drugs because it is easy to use, safe, affordable, and widely accepted by patients. This does not require sterile procedures, aggressive methods or trained healthcare workers, which makes it well suited for outpatient care and long -term treatment. Tablet and capsules form about 60 to 70 percent of all pharmaceutical products worldwide (Patel and Prajapati, 2022). However, oral solids are widely used, they do not work for all.About 35 percent of older adults and 10 percent of the general population have trouble swallowing, making them difficult to stick to their treatment (Santos et al., 2021). Young children and people with mental health conditions also struggle to swallow tablets or capsules. To help these patients, orally disintegrating tablets (ODTs) were developed. These tablets dissolve quickly in the mouth and offer a good alternative.

IMPORTANCE OF SOLID DOSES IN THERAPY:

Traditional solid dose forms are widely used in the pharmaceutical industry for several reasons.

- Stability and accurate dose.
- Production of mass products is simplified by compression or use of encapsulation.
- Unlike liquid or semi-solid forms.
- Controlled, flexibility in terms of options for prolonged or immediate release.

However, their effectiveness is limited in patients who have difficulty swallowing, as well as in children and elderly persons.
ODTS provide benefits.

TRADITIONAL SOLID ORAL DOSAGE FORMS:

TABLETS:

Active pharmaceutical ingredients (APIs) and excipients like binders, fillers, lubricants, and disintegrants are compressed to create solid dosage forms. The various varieties that are available are

Instant-release
Modified-release (controlled, sustained) Coated (film, enteric, sugar)

TABLETS:

Encase active ingredients in HPMC or gelatin shells. Among the categories are:

• Hard gelatin capsules (for granules or powders)

• Soft gelatin capsules (for semi-solids and oils)

OVERVIEW:

• Advantages include great stability, affordability, portability, accurate dosage, and patient familiarity.

• Drawbacks include reduced acceptability in some patients, delayed onset of action, and difficulties swallowing.

TABLE 1. TABLET AND CAPSULE COMPARATIVE FEATURES:

Feature	Tablets	Capsules
Dose flexibility	Average	High
Swallowability	Hard to swallow	simpler (smooth texture)
Manufacturing costs	Affordable	Medium
Stability	Excellent	Medium (sensitive to moisture)
Release types	Immediate, sustained, enteric	Mainly immediate

ORODISPERABLE PILLS:

DEFINITIONS:

• Unplanned pills that dissolve in the mouth in three minutes or less are defined by European pharmacopo.

• U.S. FDA: The form of solid dose that dissolves on the tongue in less than 30 seconds.

DEVELOPMENT:

Development Lyophilization was used to create the first ODT (Zydis®, 1986).

• Examples of direct compression, high formation, spray drying, molding, and 3D printing are examples of later developments.

BENEFITS:

• Rapid impact and breakdown.

• Water is not required, which makes emergency and travel useful for travel. Children, elderly and mental health patients display better compliance.

• It works well for intense problems (such as migraine, nausea and seizures).

LIMITATION:

• Blister packaging is required as it is delicate and moisture-sensitive.

• Limited drug loading capacity (less than 500 mg).

• Taste masking is required;

• Production costs increase

COMPARATIVE FORMULATION APPROACHES:

TABLE 2. ODTS VERSUS TRADITIONAL TABLETS:

Parameter	Traditional Tablets	Orodispersible Tablets
Disintegration	5–15 min in GIT	<30 seconds in the mouth
Need for water	Required	Not required
Dose capacity	High (up to grams)	restricted (<500 mg)
Manufacturing	Methods include Compression, granulation	Utilizes lyophilization, molding, and sublimation
Stability	Robust	Susceptible to moisture
Packaging	Available in strip or bottle	Presented in moisture-proof blisters

A LOOK AT PHARMACOKINETIC AND PHARMACODYNAMIC FACTORS:

• Conventional tablets dissolve in the stomach and undergo first-pass metabolism, which results in a delayed onset.

• ODTs: quick disintegration; some buccal absorption (like rizatriptan ODT for migraines) avoids first-pass metabolism and has faster effects.

PATIENT ACCEPTABILITY AND COMPLIANCE:

- Flavored oral disintegrating tablets (ODTs) are used to treat swallowing issues in children.
- They offer benefits to elderly patients who suffer from dry mouth and dysphagia.
- They aid in avoiding the practice of "cheeking" (concealing tablets) in psychiatry.
- Benzodiazepine ODT is used for seizures, and Ondansetron ODT is used for nausea in emergency situations.

Ion-exchange resins, coatings, cyclodextrin complexes, and sweeteners all mask taste.

PACKAGING AND STABILITY:

The ODT requires aluminum-aluminum blister packaging due to their porous structure, which leaves them unsafe for humidity. Traditional pills are more stable and store well in bulk or strip pack.

REGULATORY ASPECT:

- FDA: 30 seconds or less recommended dissolution time.

PH. EUR: The time of dissolution should not exceed three minutes.

- WHO: Encourages the use of ODT for children's essential medicines.
- Between the test criteria, there is hardness, hardness, dissolution, and coordination capacity.

PUBLICITY GOODS AND CASE STUDIES:

- Ondansetron ODT, also known as Zofran ODT, provides early relief from chemotherapy-induced nausea.
- Olanzapine ODT (zyprexa zydis): Mental health improves adherence to patients.
- Responial M-Tab, also known as Respedone ODT, has better acceptance, but is the same as regular tablets.

Loratadine ODT (Claritin Reditabs): User-friendly over-the-counter antihistamine was promoted.

CASE STUDY: Ondansetron ODT demonstrated the same effectiveness for pills in the management of vomiting, but increased adherence to patients experienceing nausea

CONCULSION:

As a result they improve the patient's adherence, hurry up at the beginning of the effects, and are simple to use, the oodesparsible tablets represent a significant advancement in the administration of oral drugs. However, problems with brittleness, cost and dose capacity limit their use. For yogas requiring high doses and stability, traditional pills remain gold standard. Finally, the choice is affected by the characteristics of the drug, the needs of the patient and therapeutic purposes.

REFERENCES:

1. Ghourichay, P. P., Saffari, P. M., & Ghourichay, P. P. (2021). Formulation and Quality Control of Orally Disintegrating Tablets (ODTs): Recent Advances and Perspectives. Advanced Pharmaceutical Bulletin, 11(4), 505–516. [PMC8719989]

2. Narmada, G. Y., Mohini, K., Prakash Rao, B., Gowrinath, D., & Kumar, K. S. (2009). Formulation, evaluation and optimization of fast dissolving tablets containing amlodipine besylate by direct compression method. Research Journal of Pharmaceutical, Biological and Chemical Sciences, 1(1), 218–224.

3. Seager, H. (1998). Drug-delivery products and the Zydis fast-dissolving dosage form. Journal of Pharmacy and Pharmacology, 50(4), 375–382.

4. Kaur, T., Gill, B., Kumar, S., & Gupta, G. D. (2011). Mouth dissolving tablets: a novel approach to drug delivery. International Journal of Current Pharmaceutical Research, 3(1), 1–7.

5. Aulton, M. E., & Taylor, K. M. G. (Eds.). (2017). Aulton's Pharmaceutics: The Design and Manufacture of Medicines (5th ed.). Elsevier Health Sciences. – [Background on conventional oral tablets].

6. Shukla, D., Chakraborty, S., Singh, S., & Mishra, B. (2009). Mouth dissolving tablets I: An overview of formulation technology. Scientia Pharmaceutica, 77(2), 309–326. https://doi.org/10.3797/scipharm.0811-05

7. Yadav, G., & Shete, A. (2018). Formulation and evaluation of orodispersible tablets: A review. Journal of Drug Delivery and Therapeutics, 8(5-s), 50–55.

8. Nagai, T., & Suzuki, Y. (1993). Oral dosage forms for elderly patients: ODT development in Japan. Drug Development and Industrial Pharmacy, 19(9), 1061–1074.

9. Bhowmik, D., Chiranjib, B., Krishnakanth, P., & Chandira, R. M. (2009). Fast dissolving tablets: An overview. Journal of Chemical and Pharmaceutical Research, 1(1), 163–177.