

## FAST DISSOLVING TABLETS: CURRENT PERSPECTIVES IN PHARMACEUTICS

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### ABSTRACT

Fast dissolving tablets (FDTs) are solid oral dosage forms designed to disintegrate rapidly in the oral cavity without the need for water, providing improved patient convenience and compliance. They are particularly beneficial for pediatric, geriatric, bedridden, and dysphagic patients who experience difficulty in swallowing conventional tablets. Rapid disintegration and dissolution of FDTs lead to faster onset of action and enhanced bioavailability. This review highlights the advantages, limitations, and mechanisms of tablet disintegration, including wicking, swelling, and deformation. Various formulation considerations, commonly used excipients such as superdisintegrants, and modern manufacturing techniques including direct compression, freeze drying, sublimation, and spray drying are discussed. Evaluation parameters for ensuring quality, such as pre- and post-compression studies, are also summarized. Despite challenges

like low mechanical strength and moisture sensitivity, fast dissolving tablets remain a promising and patient-friendly drug delivery system with wide pharmaceutical applications.

**KEYWORDS:** Fast dissolving tablets, disintegration, bioavailability, granulation technique.

### INTRODUCTION

The United States Food and Drug Administration (USFDA) defines fast dissolving tablets (FDTs) as solid oral dosage forms that contain an active pharmaceutical ingredient and are

designed to disintegrate rapidly when placed on the tongue, often breaking down within a few seconds.<sup>[1]</sup> Oral drug delivery is the most widely used route, accounting for nearly 50–60% of all dosage forms. Solid dosage forms are highly preferred due to their convenience of administration, precise dosing, suitability for self-medication, absence of pain, and improved patient compliance.<sup>[2]</sup> It is also known as mouth-dissolving tablets, mouth-melting tablets, dispersible tablets, quick dissolving porous tablets, etc. If placed on a tongue, quickly dissolving tablets disassemble the product that absorb or spread in the saliva instantaneously.<sup>[3]</sup>

Swallowing difficulties are commonly observed among geriatric patients due to factors such as fear of choking, hand tremors, and dysphagia, as well as in paediatric patients owing to the incomplete development of muscular and nervous systems. Similar challenges are also reported in patients with psychiatric disorders, including schizophrenia, which collectively contribute to poor patient compliance. It is estimated that nearly one-third of the population, predominantly paediatric and geriatric patients, experience difficulty in swallowing conventional oral tablets, leading to non-adherence and reduced therapeutic efficacy. Consequently, the development of tablet formulations that rapidly disintegrate or dissolve within the oral cavity has gained significant attention in pharmaceutical research.<sup>[4]</sup>

Most fast dissolving tablets incorporate taste-masking agents to overcome the bitterness of the active pharmaceutical ingredient. After disintegration, the taste-masked drug is swallowed along with saliva and both soluble and insoluble excipients. Upon administration, the fast dissolving solid dosage form rapidly transforms into a soft paste or liquid state, facilitating easy swallowing and minimizing the risk of choking. In recent years, several advanced drug delivery approaches have been developed to enhance bioavailability, patient convenience, and therapeutic compliance. Certain formulations are specifically designed to dissolve completely in saliva within a few seconds and are commonly referred to as true fast dissolving tablets.<sup>[5]</sup>

Literature surveys indicate that faster dissolution rates are associated with enhanced drug absorption and a more rapid onset of pharmacological action. Certain drugs may be partially absorbed through the oral cavity, pharynx, and oesophagus as saliva transports the dissolved drug to the stomach. Consequently, this pathway may result in significantly higher bioavailability compared with conventional tablet dosage forms. The disintegration time of fast disintegrating tablets is generally considered to be less than one minute.

**Advantages of Fast Dissolving tablets<sup>[6,7]</sup>**

- No water needed.
- Improved compliance.
- No chewing needed.
- Better taste.
- Improved stability.
- Suitable for controlled as well as fast release actives.
- Allows high drug loading.
- Ability to provide advantages of liquid medication in the form of solid preparation.
- Adaptable and amenable to existing processing and packaging machinery.
- Cost- effective.

**Limitation of Fast Dissolving tablets<sup>[8]</sup>**

- The tablets usually have insufficient mechanical strength. Hence, careful handling is required.
- The tablets may leave unpleasant taste and/or grittiness in mouth if not formulated properly.
- Drugs with relatively larger doses are difficult to formulate into MDT e.g. antibiotics like ciprofloxacin with adult dose tablet containing about 500 mg of the drug.
- Patients who concurrently take anticholinergic medications may not be the best candidates for MDT. Similarly, patients with dryness of the mouth due to decreased saliva production may not be good candidates for these tablet formulations.

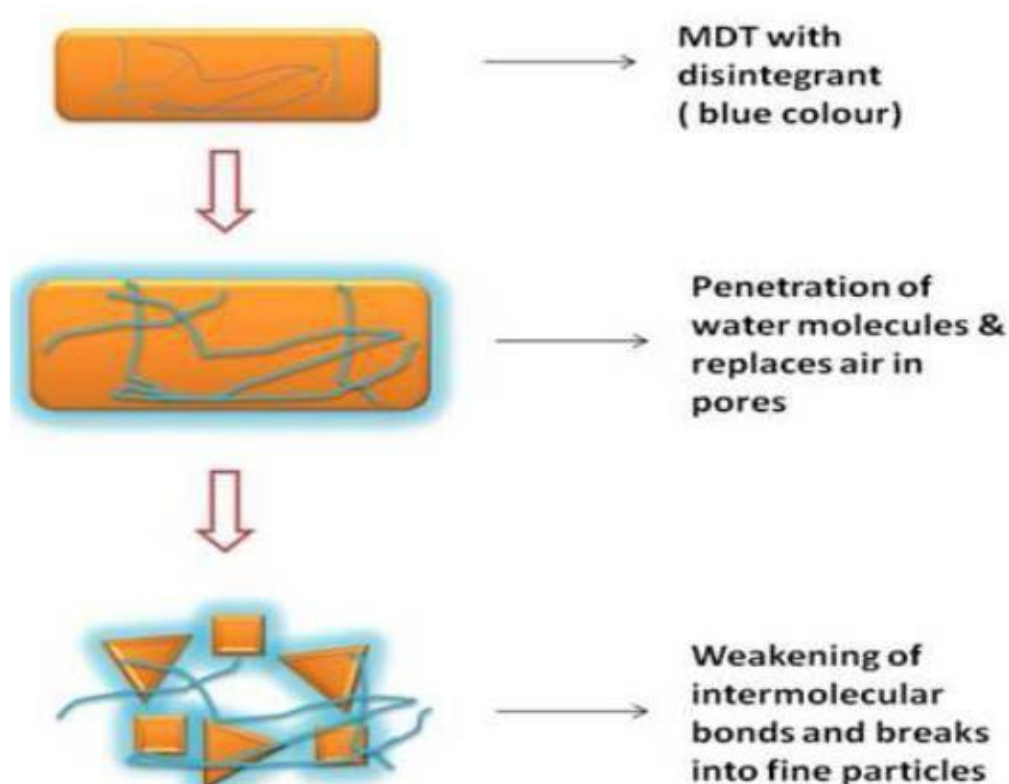
**Mechanism of tablet disintegration<sup>[9,10,11]</sup>**

The tablet breaks to primary particles by one or more of the mechanisms listed below

- 1) By capillary action (Wicking)
- 2) By swelling
- 3) Because of heat of wetting
- 4) Due to release of gases
- 5) By enzymatic action
- 6) Due to disintegrating particle/particle repulsive forces.
- 7) Due to deformation.

### 1. By capillary action (Wicking)

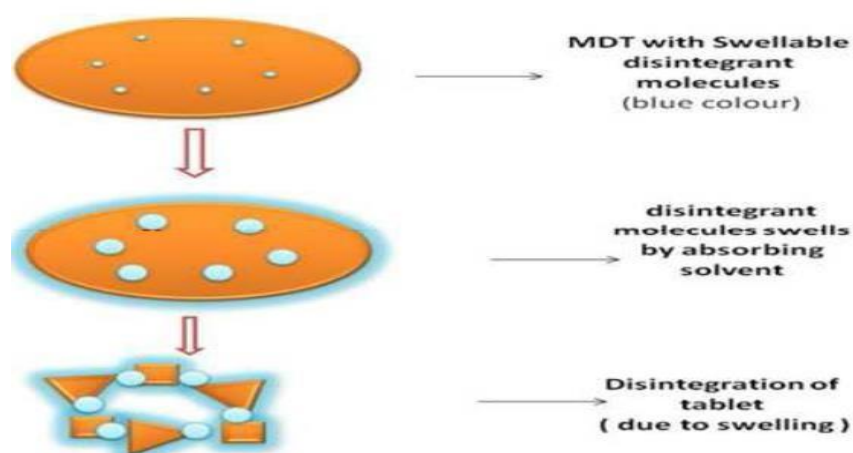
Disintegration by capillary action is always the first step. When we put the tablet into suitable aqueous medium, the medium penetrates into the tablet and replaces the air adsorbed on the particles, which weakens the intermolecular bond and breaks the tablet into fine particles. Water uptake by tablet depends upon hydrophilicity of the drug/excipient and on tableting conditions. For these types of disintegrants, maintenance of porous structure and low interfacial tension towards aqueous fluid is necessary which helps in disintegration by creating a hydrophilic network around the drug particles.



**Fig. No. 1: Representation of Disintegration of FDTs by capillary action (wicking).**

### 2. By Swelling

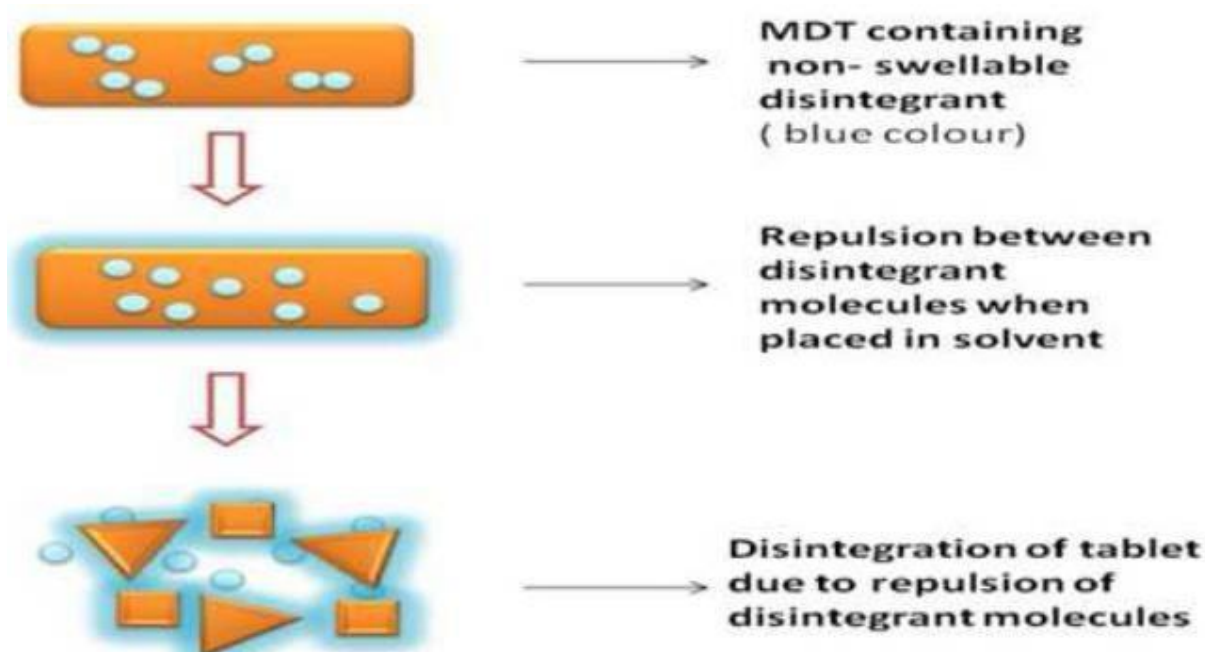
Perhaps the most widely accepted general mechanism of action for tablet disintegration is swelling. Tablets with high porosity show poor disintegration due to lack of adequate swelling force. On the other hand, sufficient swelling force is exerted in the tablet with low porosity. It is worthwhile to note that if the packing fraction is very high, fluid is unable to penetrate in the tablet and disintegration is again slow down.



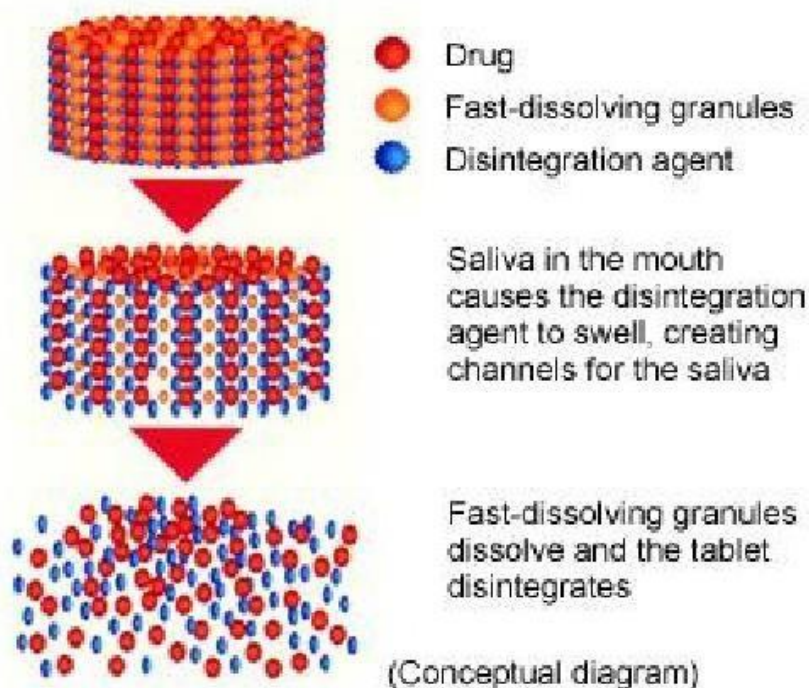
**Fig. No. 2: Representation of Disintegration of FDTs by Swelling mechanism.<sup>[9]</sup>**

### 3. Because of heat of wetting (Air expansion)

When disintegrants with exothermic properties gets wetted, localized stress is generated due to capillary air expansion, which helps in disintegration of tablet. This explanation however, is limited to only a few types of disintegrants and cannot describe the action of most modern disintegrating agents.



**Fig. No. 3: Representation of Disintegration of FDTs by Repulsion mechanism.<sup>[10]</sup>**



**Fig. No. 4: Conceptual mechanism of FDT.<sup>[11]</sup>**

## FORMULATION CONSIDERATION

1. Criteria for Fast dissolving Drug Delivery System.
2. General Excipients used in Fast Dissolving Tablet.
3. Challenges in the formulation of FDTs.
4. Newer manufacturing technologies used now days for FDTs.
5. Evaluation of Oral Fast Dissolving Tablet.

## Criteria for Fast dissolving Drug Delivery System<sup>[12,13,14]</sup>

The tablets should possess some following criteria

- Not require water to swallow, but it should dissolve or disintegrate in the mouth in matter of seconds.
- Be compatible with taste masking.
- Be portable without fragility concern.
- Have a pleasant mouth feel.
- Leave minimum or no residue in the mouth after oral administration.
- Exhibit low sensitive to environmental condition as temperature and humidity.
- Ease of Administration to the patient who cannot swallow, such as the elderly, stroke victims, bedridden patients, patient affected by renal failure and patient who refuse to swallow such as paediatric, geriatric & psychiatric patients.



- No need of water to swallow the dosage form, which is highly convenient feature for patients who are travelling and do not have immediate access to water.
- Rapid dissolution and absorption of the drug, which will produce quick onset of action.
- Some drugs are absorbed from the mouth, pharynx and esophagus as the saliva passes down into the stomach. In such cases bioavailability of drug is increased.
- Good mouth feel property helps to change the perception of medication as bitter pill particularly in pediatric patient.
- Beneficial in cases such as motion sickness, sudden episodes of allergic attack or coughing, where an ultra-rapid onset of action required.
- An increased bioavailability, particularly in cases of insoluble and hydrophobic drugs, due to rapid disintegration and dissolution of these tablets.

#### **Suitable features of excipients used in fast dissolving tablets<sup>[15,16]</sup>**

- They must not have an unacceptable microbiological load.
- It must match the colour; it should not change the colour shade in the construction.
- If the product is classified as food, detergents and other additives must be approved for food additives.
- They must not adversely affect the availability of organic products. They must be non-toxic and non-medical and must be approved by regulatory agencies in the countries where the product will be marketed.
- Must be commercially available at a reasonable level in the countries where the product will be produced.
- Cost effective.
- They must be physically inactive.
- They must be physically and chemically stable and combined with other medications and components of the medication.

**Table 1: Excipients used in solid dosage forms.<sup>[17]</sup>**

EXCIPIENTS	FUNCTION	EXAMPLE
Diluent	Serve as bulking agents and facilitate accurate dosing.	Sugar compounds: lactose, mannitol, dextrose, sorbitol, silicate, calcium, magnesium salt, sodium chloride, potassium chloride, cellulose Derivatives.
Binder, compression aid, granulating agents	Facilitate tablet compression. Ensure tablet robustness.	Natural and synthetic polymer: starch, gelatin, and sugars as sucrose, glucose and lactose.

Disintegrants	Aid with tablet disintegration and dissolution by increasing the surface area of the tablets, facilitate release of drug substance.	Compounds which swell in the presence of water: starch, cellulose derivatives, alginates and crosspovidone.
Super disintegrants	Improved disintegrant efficacy resulting in decreased use levels when compared to traditional disintegrants.	Croscarmellose, crosspovidone, sodium starch glycolate, polacrillin potassium.
Glidants	Granulation flow enhancer, aid with tablet compression and eliminate particles Agglomeration (anticaking).	Colloidal anhydrous silicon, silica compounds, talc.
Lubricants	Tablet compression aid, reduce blend cohesiveness characteristic during compression, reduce disintegration rate.	Steric acid, salts, and derivatives of steric acid, talc, hydrogenated vegetable oils and PEG
Coating agent	Prevent tablet degradation environmental conditions (temperature, light, moisture). Serve as taste masking agents.	Natural and synthetic polymers, those are insoluble in acid.

**Table 2: List of Commercially Available Super disintegrants.**<sup>[18]</sup>

Sl. No	Superdisintegrants	Mechanism of Action	Properties	Avialable Grades
1.	Cross-linked Alginic acid	Worked by wicking movement, prompt bulge upon hydration	Loose cohesion in a wet and dry medium.	Alginic acid, Satialgine
2.	Cross-linked PVP	Act by capillary action	Spongy in nature and water-insoluble	Kollidon, Polyplasdone, Crosspovidone
3.	Cross-linked starch	In less than 30 seconds swells 7-11 folds	Gives sustained release in a matrix and swells in three dimensions	Primogel, Sodium starch glycolate, Explotab
4.	Crosslinked polymer of Polycarboxylic acids	Very high swelling tendency of hydration either in contact with water or G.I. fluids	Increases the effective surface area for the absorption of the active substances	Kyron T-314
5.	Cross-linked cellulose	Swells 4 to 8 folds in less than 10 sec. Swelling and wicking	Used in direct compression or granulation, swelling is in two dimensions	Croscarmellose, Ac-Di-sol, Nymce ZSX, primellose, Solutab, Vivasol

**Newer manufacturing technologies used now days for FDT's**<sup>[19-26]</sup>

1. Freeze drying/ Lyophilization



2. Moulding
3. Sublimation
4. Spray drying
5. Direct compression
6. Mass extrusion
7. Nanonization
8. Cotton candy process

### 1. Freeze drying/Lyophilization

Freeze drying, also known as lyophilization, is one of the first-generation techniques employed for the preparation of orally disintegrating tablets (ODTs). In this process, water is removed from the formulation by sublimation after freezing. The resulting dosage forms exhibit enhanced dissolution characteristics due to the formation of a porous, glossy amorphous structure of the bulking agents and, in some cases, the drug substance. Drugs suitable for this technique typically possess low water solubility, fine particle size, and good aqueous stability in suspension. However, water-soluble drugs may present challenges such as eutectic mixture formation during freezing, which can lead to structural collapse upon sublimation. The incorporation of crystallizing agents, such as mannitol, promotes crystallinity and imparts rigidity to the otherwise amorphous matrix. A major advantage of the freeze-drying process is that pharmaceutical substances can be processed at low temperatures, thereby minimizing the risk of thermal degradation. Despite these advantages, the technique is limited by high equipment and processing costs. Additionally, the final dosage forms often exhibit low mechanical strength and insufficient resistance for conventional blister packaging.<sup>[19]</sup>

**2. Moulding:** Moulding is one of the techniques employed in the preparation of orally disintegrating tablets and is broadly classified into two types: the solvent moulding method and the heat moulding method. In the solvent moulding method, the powder blend is moistened with a hydroalcoholic solvent and subsequently compressed at low pressure into moulded plates to form a wetted mass, a process commonly referred to as compression moulding. The tablets are then air-dried to remove the solvent. Tablets prepared by this method are generally less compact than conventionally compressed tablets and possess a highly porous structure, which facilitates rapid dissolution. In the heat moulding method, a suspension containing the drug, agar, and sugar is prepared and poured into blister pack

cavities. The agar is allowed to solidify at room temperature to form a gel, followed by drying under vacuum at approximately 30 °C. A major limitation of moulded tablets is their relatively low mechanical strength; however, this can be improved through the incorporation of suitable binding agents. Additionally, spray congealing involves spraying a molten mixture of hydrogenated cottonseed oil, sodium carbonate, lecithin, polyethylene glycol, and the active pharmaceutical ingredient onto lactose-based carrier particles to obtain taste-masked drug particles. Compared with the lyophilization technique, moulding methods offer easier scale-up and are more suitable for industrial-scale manufacturing.<sup>[20]</sup>

**3. Sublimation:** The sublimation technique involves the incorporation of inert volatile substances, such as urea, urethane, naphthalene, or camphor, into the tablet formulation along with other excipients, followed by compression of the blend into tablets. Subsequent removal of the volatile components by sublimation creates a porous tablet matrix, which facilitates rapid disintegration upon contact with saliva. In addition to solid volatile agents, certain organic solvents such as cyclohexane and benzene may also be employed as pore-forming agents. This method enables the development of mouth dissolving tablets with a highly porous structure while maintaining adequate mechanical strength.<sup>[21]</sup>

**4. Spray Drying:** Spray drying is another technique employed for the preparation of mouth dissolving tablets (MDTs). In this method, the formulation typically contains hydrolysed and non-hydrolysed gelatin as bulking agents, along with superdisintegrants such as sodium starch glycolate or croscarmellose sodium. The incorporation of acidic agents (e.g., citric acid) or alkaline agents (e.g., sodium bicarbonate) further enhances tablet disintegration and dissolution. The prepared suspension is spray-dried to obtain a highly porous powder, which is subsequently compressed into tablets. Tablets manufactured using this technique exhibit rapid disintegration, usually within 20 seconds, when exposed to an aqueous medium.<sup>[22]</sup>

**5. Direct compression:** Direct compression is one of the simplest, most economical, and widely used tablet manufacturing techniques. Mouth dissolving tablets (MDTs) can be effectively prepared using this method due to the availability of advanced excipients, particularly superdisintegrants and sugar-based excipients, which facilitate rapid tablet disintegration without the need for complex processing steps. This technique offers advantages such as fewer manufacturing steps, reduced processing time, and improved cost efficiency.

The major categories of excipients used in direct compression for MDT formulation include: Superdisintegrants: These excipients promote rapid tablet breakup upon contact with saliva by mechanisms such as swelling, wicking, and deformation, thereby enhancing the disintegration rate. Sugar based excipients: These materials improve palatability, mouthfeel, and compressibility while also contributing to faster tablet dissolution.<sup>[23]</sup>

**6. Mass extrusion:** Mass extrusion is a manufacturing technique in which the active pharmaceutical ingredient and excipients are softened using a solvent mixture, typically consisting of water-soluble polyethylene glycol and methanol. The resulting softened mass is then extruded through an extruder or syringe to obtain a cylindrical extrudate, which is subsequently cut into uniform segments using a heated blade to form tablets. This method is particularly useful for taste masking, as granules of bitter drugs can be prepared using this technique prior to tablet formation.<sup>[24]</sup>

**7. Nanonization:** Nanonization is a recently developed approach, such as NanoMel™ technology, which involves the reduction of drug particle size to the nanometre range using wet-milling techniques. The resulting drug nanocrystals are stabilized against agglomeration by adsorption onto suitable stabilizing agents and are subsequently incorporated into mouth dissolving tablets (MDTs). This technique is particularly advantageous for poorly water-soluble drugs, as it significantly enhances the dissolution rate. Additionally, nanonization allows for the formulation of MDTs over a wide dose range, accommodating drug loads of up to approximate 200 mg per unit.<sup>[25]</sup>

**8. Cotton candy process:** The FLASHDOSE is a MDDDS manufactured using shear form technology in an association with Ceform TI technology to eliminate the bitter taste of the medicaments [A matrix known as floss, with a combination of excipients, either alone or with drugs is prepared by using shear form technology. Like cotton-candy fibre floss is fibrous material made of saccharide such as a sucrose, dextrose, lactose and fructose temperatures ranging between 180-266<sup>0</sup>F. however other polysaccharides such as polymaltodextrin and poly-dextrose can be transformed into fibres at 30-40% lower temperature than sucrose. Due to this modification thermo labile drugs can be safely incorporate.<sup>[26]</sup>

**Table 3: CHALLENGES IN THE FORMULATION OF FDT'S.**<sup>[27]</sup>

CHALLENGES	COMMENTS
Taste masking	Most drugs need taste masking
Cost	Due to process, material, packaging, and taste masking
Special packaging	Tablets are fragile and must be protected from water
Novel manufacturing process	Due to new equipment, technology, and process
Limited drug loading	Technology limitation, taste masking, and tablet size
Clinical/medical benefits	Need more clinical trials to study medical benefits
Older patient acceptance	Do not like taste, flavor, dissolve too fast, and cost
Patient compliance	Frequency, may not remember, taste, take too many

**EVALUATION OF ORAL FAST DISSOLVING TABLET**<sup>[28,29,30]</sup>**PRE-COMPRESSION STUDIES**

**1. Bulk density:** Bulk density was determined by pouring the 5gm of powder in to a 100ml graduated cylinder. Then bulk volume (v) was noted. Bulk density was noted by using following formula.

$$\text{Bulk density} = \frac{\text{Mass of the powder (M)}}{\text{Bulk volume of the powder (Vb)}}$$

**2. Tapped density:** The measuring cylinder containing measured amount of the powder was tapped for specified number of tapping and time. The volume occupied by the powder after tapping and mass was noted.

**3. Carr's index (or) Percentage (%) compressibility:** It indicates powder flow properties. It is expressed in percentage and it is given as

**Relationship between % compressibility and flowability**

%Compressibility	Flow ability
5-10	Excellent
12-16	Good
18-21	Fair Passable
23-25	Poor
33-38	Very Poor
<40	Very Very Poor

**4. Hausner's ratio:** Indirect index of powder flow can be determined from Hausner's ratio calculation.

**Relationship between Hausner's ratio and Flow property**

Hausner's ratio	Flow property
1.8	Excellent
1.19	Good

1.25	Passable
1.3-1.5	Very Poor
>1.5	Very Very Poor

**5. Porosity:** Percent relative porosity was obtained using the relationship between apparent density and true density.

**6. Angle of repose:** It was calculated by using funnel method powder blend was poured on vertically placed funnel until cone of maximum height was formed.

#### Relationship between Angle of Repose and type of flow

Angle of Repose	Type of flow
>20	Excellent
20-30	Good
30-34	Passable
>34	Very Poor

**7. Void volume:** It was obtained by difference between bulk volume (Vb) and tapped volume (Vt). Void volume can be calculated by following formula.

Void volume = Bulk volume – Tapped volume

### B. POST COMPRESSION STUDIES

**1. Tablet thickness:** The thickness was measured by placing tablet between two arms of the vernier calipers. 5 tablets were taken and their thickness was measured.

**2. Tablet hardness:** The tablet hardness which is the force required to break a tablet in a diametric compression force. The hardness tester used in the study was Monsanto hardness tester. Which applies forces to the tablet diametrically with the help of an inbuilt spring.

**3. Weight variation test:** Weight variation test was done by weighing 20 tablets individually by using Calculating the average weight and comparing the individual tablet weight to the average weight.

Average weight of tablet	% Deviation
80mg or less	± 10
More than 80mg but less than 250mg	± 7.5
250mg or more	± 5

**4. Friability:** Friability of the tablets was calculated by using Roche Friabilator (pharma test Germany). Twenty tablets were weighed on electronic weighing balance (Shimadzu Japan)

and their weight was noted. Tablets were placed in the Friabilator. The Friabilator was operated at a speed of 25rpm for 4 minutes. After 4 minutes tablets were removed, dedusted and again weighed in order to determine final weight of the tablet.

**5. Wetting time:** A glass petri dish was practically filled with water and a tablet was placed on the surface of a band of filter paper supported on a glass slide. The uptake of water occurred from the lower surface of the tablet. The time required for water to reach the center of the upper surface of the tablet was noted as wetting time.

**6. Water absorption ration:** A piece of tissue paper folded twice was placed in a small petri dish containing 6ml of the water. A tablet was put on the paper of the time required for complete wetting was measured. The wetted tablet was then weighed. Water absorption ratio (R) was determined using following equation.

**7. Dispersion time:** 10ml of water filled in the petri dish and put down the tablet at the center of the petri dish and note down the complete disintegration tablet.

**8. Drug content:** Five tablets from each batch are weighed and powdered, 10mg equivalent of the powder is taken and diluted with 10ml of distilled water and the volume is made up to 100ml. From this 10ml of the solution is taken and the volume is made up to 100ml with distilled water. The absorbance of the solution is measured using UV- spectrophotometer at 271nm.

**9. Disintegration time:** The disintegration test is performed using an USP disintegration apparatus with distilled water at  $37 \pm 0.50^\circ\text{C}$ . The time reported to obtain complete disintegration of 6 tablets are recorded and average is reported.

**10. Dissolution studies:** The release rate of the formulated tablets is characterized using USP type 2 (paddle) at 50rpm 900ml of distilled water is used as dissolution medium. 10ml of blank media. The sample are withdrawn at 5, 10, 15, 30 and 45min. then analysed using UV- spectrophotometry.

**Table 4: Recent Research Articles on Fast Dissolving Tablets.**

Year	Title	Journal	Corresponding Author	Key Highlights	Reference
2025	QbD approach in enhancement of oral	Int J Appl Pharm	Rada SK	QbD-based optimization	Rada SK, et al. Int J Appl Pharm.



	bioavailability of Telmisartan fast dissolving tablets			using novel superdisintegrant	2025;17(1):112–120.
2025	Design and evaluation of carvedilol fast dissolving tablets using soursop starch	Int J Appl Pharm	Rada SK	Natural superdisintegrant improved dissolution	Rada SK, et al. Int J Appl Pharm. 2025; 17(2): 85–93.
2025	Optimized formulation of sitagliptin fast dissolving tablets using DoE	Int J Pharm Sci Drug Res	Bhadane DG	Statistical optimization for rapid disintegration	Bhadane DG, Somwanshi SB. Int J Pharm Sci Drug Res. 2025;17(1):45–52.
2024	Optimization of fast dissolving tablets of carvedilol using factorial design	Int J Appl Pharm	Kusuma A	Improved dissolution and disintegration	Kusuma A, Rada SK. Int J Appl Pharm. 2024;16(3):210–218.
2023	Formulation and evaluation of fast dissolving tablets of irbesartan	Int J Pharm Chem Anal	Ondieki KA	Direct compression FDT formulation	Ondieki KA, et al. Int J Pharm Chem Anal. 2023;10(4):278–284.
2022	Fast dissolving tablets of haloperidol using solid dispersion technique	Saudi Pharm J	Eisa AM	Enhanced solubility and rapid onset	Eisa AM, et al. Saudi Pharm J. 2022;30(12):1617–1626.
2023	Formulation and evaluation of fast dissolving tablets of mebendazole	Eur Chem Bull	Choudhary RK	Improved bioavailability	Choudhary RK, et al. Eur Chem Bull. 2023;12(5):489–495.
2024	Development of fast dissolving tablets of valsartan	Frontline Med Sci Pharm J	Radha Kumari R	Enhanced patient compliance	Radha Kumari R, et al. Frontline Med Sci Pharm J. 2024; 6(2): 134–141.
2021	Formulation and evaluation of fast dissolving tablets of ondansetron	J Pharm Res	Patel HM	Rapid onset of action	Patel HM, et al. J Pharm Res. 2021;15(2):67–73.

## CONCLUSION

In recent years, orally disintegrating tablets (ODTs) have attracted considerable attention over conventional dosage forms owing to their numerous benefits. Fast dissolving tablets are solid dosage forms that rapidly disintegrate in the oral cavity, usually within 60 seconds, without the need for water. These formulations offer advantages such as rapid drug absorption, enhanced bioavailability, and improved therapeutic effectiveness. They are especially beneficial for patients who have difficulty swallowing, including pediatric, geriatric, and

bedridden patients. The fundamental concept behind FDTs is to achieve quick disintegration and dissolution, which can be accomplished through the incorporation of superdisintegrants or by developing a highly porous tablet structure. Various formulation techniques are employed for the preparation of FDTs, including freeze-drying, direct compression, and sublimation methods. Despite certain limitations such as low mechanical strength and sensitivity to moisture, FDTs are widely accepted due to their superior patient compliance. Owing to their high market demand and patient-friendly nature, a wide range of drugs can be successfully developed in the form of fast dissolving tablets.

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