ABSTRACT

Drug delivery systems are becoming increasingly sophisticated as pharmaceutical scientists acquire a better understanding of the physicochemical and biochemical parameters pertinent to their performance. The conventional drug delivery system is mostly used for delivery of drugs. But these have prolonged onset of action due to slow disintegration and poor dissolution. To overcome these problems different novel drug delivery systems would introduced. The fast dissolving drug delivery system (FDDDS) is rapidly gaining interest in pharmaceutical Industry. Fast-dissolving drug delivery systems were first developed in the late 1970s as an alternative to conventional tablet, capsule and syrups. These disintegrate and dissolve within a minute, without needing water or chewing and enhance the potential for improved compliance in paediatrics and geriatric patients, who have difficulty in swallowing tablets or liquids. As fast dissolving tablet provide instantaneous disintegration after putting it on tongue, thereby rapid drug absorption and instant bioavailability, whereas fast dissolving oral films are used as practical alternative to fast dissolving tablets. In spite of the downside i.e., lack of immediate onset of action; these oral dosage forms have beneficial purposes such as self medication, increased compliance, ease of manufacturing and lack of pain. Hence fast dissolving tablet technology has been gaining significance now-a-days with wide variety of drugs serving many purposes. Fast dissolving tablets has ever increased their demand in the last decade since they disintegrate and dissolve in saliva in less than 60 seconds. FDDS are a proven and accepted technology for the systemic delivery of APIs for over-the-counter (OTC) medications.
KEYWORDS: Fast Dissolving Drug delivery systems, Fast dissolving tablets, Oral films, API.

INTRODUCTION
Patient compliance is one of the most important aspects in the pharmacy practice. Nowadays, pharmacy companies are coming up with development of new drug delivery systems to ensure the delivery of the drugs to the patients efficiently and with fewer side effects. Solid dosage forms are popular because of ease of administration, accurate dosage, self medication, pain avoidance and most importantly the patient compliance. The oral route of administration is considered as the most widely accepted route because of its convenience of self-medication, compaction and ease of manufacturing, ease of administration, accurate dose, safest and economical route.\(^1\)\(^-\)\(^3\) It is the duty of the health care provider to administer bitter drugs orally with acceptable level of palatability especially with paediatric and geriatric patients.\(^4\)

Fast dissolving drug delivery system were first came into existence in 1970 as an alternative to tablets, syrups and capsules, for paediatric and geriatric patients which rapidly disintegrate and dissolve in saliva and then easily swallowed without need of water which is a major benefit over conventional dosage form.\(^5\)

Fast dissolving drug delivery system have acquired great importance in the pharmaceutical industry due to their unique properties and advantages like availability of larger surface area that leads to rapid disintegrating and dissolution in the oral cavity, no need of water, accurate dosing, rapid onset of action, ease of transportability, ease of handling, pleasant taste and improved patient compliance especially for paediatric and geriatric. There are multiple fast-dissolving over the counter (OTC) and prescribed (Rx) products on the market worldwide, most of which have been launched in the past 3 to 4 years.\(^6\) There have also been significant increases in the number of new chemical entities under development using a fast-dissolving drug delivery technology.

FAST DISSOLVING TABLETS
Fast dissolving tablets (FDTs) are also known as fast disintegrating/melting tablets, Oro-dispersible tablets, rapimelts, and porous tablets. The FDTs dissolve or disintegrate within 60 seconds when placed in the mouth without drinking or chewing.\(^7\)
The active ingredients are absorbed through mucous membranes in the mouth and GIT and enter the blood stream. Several marketed products of FDTs are available, as listed in Table 1.

**Table 1: Examples of commercially available fast dissolving tablets**

<table>
<thead>
<tr>
<th>Product</th>
<th>Active Drug</th>
<th>Dose Strength (mg)</th>
<th>Application</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Felden FM[^8^]</td>
<td>Piroxicam</td>
<td>20</td>
<td>Relieves pain and Inflammation</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Nimulid MD[^9^]</td>
<td>Nimesulide</td>
<td>100</td>
<td>Analgesic and antipyretic</td>
<td>Panacea</td>
</tr>
<tr>
<td>Vomidon MD[^10^]</td>
<td>Domperidone</td>
<td>10</td>
<td>Safe gastrokinectic, use in nausea and vomiting</td>
<td>Olcare Lab</td>
</tr>
<tr>
<td>Zofer MD[^11^]</td>
<td>Ondansetron</td>
<td>10</td>
<td>In nausea and vomiting</td>
<td>Sun Pharma</td>
</tr>
<tr>
<td>Valus[^10^]</td>
<td>Valdecoxib</td>
<td>100</td>
<td>Analgesic and antipyretic</td>
<td>Galen Mark</td>
</tr>
</tbody>
</table>

**Ideal Properties of Fast Dissolving Tablets**

1. Require no water for oral administration.
2. Should be harder and less friable.
3. Have an acceptable taste masking property.
4. Leave minimal or no residue in mouth after administration
5. Exhibit low sensitivity to environmental conditions (temperature and humidity).
6. Cost-effective production techniques

**Advantages of Fast Dissolving Tablets[^11^]**

1. Ease of administration to patients who cannot swallow like the bed-ridden, stroke victims and patients who refuse to swallow like geriatrics, paediatrics and psychiatrics.
2. Good mouth feel property
3. Beneficial in cases such as motion sickness, sudden episodes of allergic attack or coughing, where an ultra rapid onset of action required.
4. Compatible with taste masking.
5. Portable without fragility concern.
6. Rapid drug therapy intervention is possible.
7. Conventional processing and packaging equipments allow the manufacturing of tablets at low cost.
8. No specific packaging is required. It can be packaged in push through blisters.

**Limitations of Mouth Dissolving Tablets**

The tablets usually have insufficient mechanical strength. Hence, careful handling is required.

1. FDT requires special packaging for properly stabilization and safety of stable product.
2. Fast dissolving tablet is hygroscopic in nature so must be keep in dry place.
3. Some time it possesses mouth feeling.
4. MDT requires special packaging for properly stabilization & safety of stable product.
5. Drugs difficult to formulate into FDT with relatively larger doses.
6. Drugs with short half-life and frequent dosing and those whom require controlled or sustained release are unsuitable candidates of FDTs.
7. Drugs with relatively large doses are difficult to formulate into FDTs.

**VARIOUS TECHNIQUES FOR PREPARATION OF FAST DISSOLVING TABLETS**

Techniques for the preparation of FDTS include

A. **Non Patented Technology**
B. **Patented Technology**

A. **Non Patented Technology**

Various non-patented technologies include

1. Freeze drying / lyophilization
2. Tablet Moulding
3. Spray drying
4. Sublimation
5. Direct compression
6. Melt granulation
7. Mass extrusion
8. Cotton Candy process

**1. Freeze drying / lyophilization**

Lyophilization is a process in which water is sublimated from the product after freezing. Lyophilization is a pharmaceutical technology which allows drying of heat sensitive drugs and biologicals at low temperature under conditions that allow removal of water by sublimation. Lyophilization results in preparations, which are highly porous, with a very high specific surface area, which dissolve rapidly and show improved absorption and
bioavailability. Jaccard and Leyder used lyophilization to create an oral pharmaceutical preparation that not only dissolves rapidly but also improved the bioavailability of several drugs such as spironolactone and trolendomycin.[14]

2. Tablet Moulding
Tablets formed by molding process are highly porous in structure, resulting in high rate of disintegration and dissolution. This process includes moistening, dissolving, or dispersing the drugs with a solvent then molding the moist mixture into tablets by applying lower pressure in compression molding, but always lower than the conventional tablet compression. The powder mixture may be sieved prior to the preparation in order to increase the dissolution. Mold tablets have low mechanical strength, which results in erosion and breakage during handling.[15]

3. Spray drying
Spray drying can produce highly porous and fine powders that dissolve rapidly. The formulations are incorporated by hydrolyzed and non hydrolyzed gelatin as supporting agents, mannitol as bulking agent, sodium starch or croscarmellose sodium as disintegrating and an acidic material (e.g. citric acid) and/ or alkali material (e.g. sodium bicarbonate) to enhance disintegration and dissolution. Tablet compressed from the spray dried powder disintegrated within 20 seconds when immersed in an aqueous medium.

![Flowchart for coating liquid and solid particles using spray-dry process](image)

Figure 1: Flowchart for coating liquid and solid particles using spray-dry process
4. Sublimation
To generate a porous matrix, volatile ingredients are incorporated in the formulation that is later subject to a process of sublimation. Highly volatile ingredients like ammonium bicarbonate, ammonium carbonate, benzoic acid, camphor, urea, urethane and phthalic anhydride may be compressed along with other excipient into a tablet. This volatile material is then removed by sublimation leaving behind a highly porous matrix. Tablets manufactured by this technique have reported to usually disintegrate in 10-20 sec.\cite{16}

![Figure 2: Schematic Diagram of Sublimation Technique for Preparation of FDT](image)

5. Direct compression
Direct compression represents the simplest and most cost effective tablet manufacturing technique. This technique can now be applied to preparation of ODT because of the availability of improved excipient especially superdisintegrants and sugar based excipient. These are two types 1. Superdisintegrants 2. Sugar Based Excipient.

a. Superdisintegrants
In many orally disintegrating tablet technologies based on direct compression, the addition of superdisintegrants principally affects the rate of disintegration and hence the dissolution. The presence of other formulation ingredients such as water-soluble excipient and effervescent agents further hastens the process of disintegration.
b. Sugar Based Excipient
This is another approach to manufacture fast dissolving tablets by direct compression. The use of sugar based excipient especially bulking agents like dextrose, fructose, lactitol, maltitol, maltose, mannitol, sorbitol, starch hydrolysate and polydextrose which display high aqueous solubility and sweetness, and hence impart taste masking property and a pleasing mouth feel.\[17\]

6. Melt granulation
Melt granulation technique is a process by which the pharmaceutical powders are capably agglomerated by a melt able binder. The benefit of this technique compared to a conventional granulation is that no water or organic solvents is required. Since there is no drying step, the process is less time consuming and requires less energy than wet granulation. It is a technique useful to enhance the dissolution rate of poorly water-soluble drugs, such as griseofulvin.\[18\]

7. Mass extrusion
- Particles swell to pre compression size and break up the matrix.
- Water is drawn into the pores and particles repel each other due to the resulting electrical force.

This technology involves softening the active blend using the solvent mixture of water soluble polyethylene glycol, using methanol and expulsion of softened mass through the extruder or syringe to get a cylinder of the product and cut into even segments by using heated blade and to form tablets. The dried cylinder can also be subjected to coat the granules of bitter tasting drugs and thereby masking their bitter taste.

8. Cotton Candy process
This process is so called as it makes use of a unique spinning mechanism to produce floss-like crystalline structure, which mimic cotton candy. Cotton candy process involves the formation of matrix of polysaccharides or saccharides by simultaneous action of flash melting and spinning. The matrix formed is partially recrystallized to have better flow properties and compressibility. This candy floss matrix is then milled and blended with active ingredients and excipients and subsequently compressed to ODT. This process can accommodate larger drug doses and offers improved mechanical strength. However, high-process temperature limits the use of this process.\[19\]
A. Patented Technology

Following table shows the various patented technologies.

Table No.2: Patented Technologies

<table>
<thead>
<tr>
<th>S No.</th>
<th>Technique</th>
<th>Key Attributes</th>
<th>Methods</th>
<th>Company Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>Durasolv</td>
<td>Direct compression using Water</td>
<td>Direct Compression</td>
<td>CimaLabs, Inc.</td>
</tr>
<tr>
<td>3.</td>
<td>Orasolv</td>
<td>low compression force and an effervescent couple as a water soluble disintegrating agent</td>
<td>Direct Compression</td>
<td>CimaLabs, Inc.</td>
</tr>
<tr>
<td>4.</td>
<td>Flashdose</td>
<td></td>
<td>Cotton Candy Process</td>
<td>Fuisz Technology Ltd.</td>
</tr>
<tr>
<td>5.</td>
<td>WOWTAB</td>
<td>High- and low-mold ability</td>
<td>Direct Compression</td>
<td>Yamanouchi Pharma</td>
</tr>
<tr>
<td>6.</td>
<td>Flashtab</td>
<td>Granulation of excipient by wet or dry granulation</td>
<td>Direct Compression</td>
<td>Ethypharm France</td>
</tr>
<tr>
<td>8.</td>
<td>Advatab</td>
<td>Direct Compression using External Lubrication System</td>
<td>Micro caps And Diffuscap CR Technology</td>
<td>Eurand International</td>
</tr>
<tr>
<td>9.</td>
<td>Lyoc</td>
<td>Freeze Drying</td>
<td>Lyophilization</td>
<td>Farmalyoc Laboratories</td>
</tr>
<tr>
<td>10.</td>
<td>Advantol</td>
<td>Directly Compressible Excipients System</td>
<td>Direct Compression</td>
<td>SPI Pharma</td>
</tr>
</tbody>
</table>

Evaluation of Fast Dissolving Tablet Systems

Weight variation

20 tablets were selected randomly from the lot and weighted individually to check for weight variation.

<table>
<thead>
<tr>
<th>Average weight of tablet</th>
<th>% deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 mg or less</td>
<td>±10</td>
</tr>
<tr>
<td>More than 80 mg but less than 250 mg</td>
<td>±7.5</td>
</tr>
<tr>
<td>250 mg or more</td>
<td>±5</td>
</tr>
</tbody>
</table>

Friability test

Friability of each batch was measured in “Electro lab Friabilator”. Ten pre weighed tablets were rotated at 25 rpm for 4 min, the tablets were then re weighed and the percentage of weight loss was calculated.
Hardness of Tablets
Hardness of tablet is defined as the force applied across the diameter of the tablet in the order to break the tablet. The resistance of the tablet to chipping, abrasion or breakage under condition of storage transformation and handling before usage depend on its hardness. Hardness of the tablet of each formulation was determined using Monsanto hardness tester.

Wetting time
Five circular tissue papers of 10 cm diameter are placed in a Petri dish with a 10 cm diameter. 10mm of water-containing Eosin, a water-soluble dye, is added to Petri dish. A tablet is carefully placed on the surface of the tissue paper. The time required for water to reach upper surface of the tablet is noted as a wetting time.

\[
dl/dt = r \cos \theta / (4 l)
\]

In vitro disintegration time
In vitro disintegration time is determined visually in a glass dish of 25ml distilled water with swirling every 10 sec. The disintegration time is the time when the film starts to break or disintegrates.\(^{[20]}\)

In vitro dissolution studies
The in vitro dissolution study is carried out in simulated saliva solution pH 6.4 phosphate buffer using USP paddle apparatus at 37±0.5°C. Samples are withdrawn at regular time interval and analyzed by UV-Visible spectrophotometer.

Dissolution test
Paddle apparatus was used and paddle was allowed to rotate at 50 rpm. phosphate buffer (PH 6.8) (900 ml) was used as a dissolution medium.

Packaging
Packaging special care is required manufacturing and storage to protect the dosage of other fast-dissolving dosage forms. Quick-dispersing and dissolving oral delivery systems, the system can be packaged using various options, such as single paunch, blister card with
multiple units, multiple unit dispenser, and continuous roll dispenser, depending on the application and marketing objectives.

**FAST DISSOLVING ORAL FILMS**

Fast dissolving oral films (FDOFs) are the most advanced form of oral solid dosage form due to more flexibility and comfort. It improves the efficacy of drugs by dissolving within minute in oral cavity after the contact with saliva without chewing and no need of water for administration. It gives quick absorption and instant bioavailability of drugs due to high blood flow and permeability. FDOFs are useful in patients such as paediatric, geriatrics, bedridden, emetic patients, diarrhea, sudden episode of allergic attacks, or coughing for those who have an active lifestyle.[21-22] Fast dissolving oral films are based on the technology of the transdermal patch. Films are very similar to postage stamp in their shape, size and thickness.[23]

Sometimes taste masking agents are also added to mask the taste of the active ingredient. Several marketed products are available of FDOFs, as listed in Table 3.

**Table 3: Examples of commercially available Fast Dissolving Oral Films**

<table>
<thead>
<tr>
<th>Product</th>
<th>Active Drug</th>
<th>Dose Strength (mg)</th>
<th>Application</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triaminic</td>
<td>Dextromethorphan HBr</td>
<td>5/7.5</td>
<td>Seasonal allergy</td>
<td>Novartis</td>
</tr>
<tr>
<td>Triaminic</td>
<td>Diphenhydramine HCl</td>
<td>12.5</td>
<td>Thin Strip for Long acting cough</td>
<td>Novartis</td>
</tr>
<tr>
<td>Theraflu</td>
<td>Dextromethorphan HBr</td>
<td>10/20</td>
<td>For Long acting cough</td>
<td>Novartis</td>
</tr>
<tr>
<td>Gas-X</td>
<td>Simethicone</td>
<td>62.5</td>
<td>Gas-X Thin Strip Anti Gas</td>
<td>Novartis</td>
</tr>
<tr>
<td>Sudafed PE</td>
<td>Phenylephrine HCl</td>
<td>10</td>
<td>Decongestant oral strips</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Benadryl</td>
<td>Diphenhydramine HCl</td>
<td>12.5</td>
<td>Antihistaminic oral strips</td>
<td>Pfizer</td>
</tr>
<tr>
<td>Chloraseptic</td>
<td>Benzocaine: Menthol</td>
<td>3/3</td>
<td>Chloraseptic Relief Strips</td>
<td>Prestige</td>
</tr>
<tr>
<td>Ondansetron</td>
<td>Ondensteron</td>
<td>4/8</td>
<td>Antiemetic, helps in nausea and vomiting</td>
<td>Labtec GmbH</td>
</tr>
</tbody>
</table>

**FORMULATION METHODOLOGY EMPLOYED FOR FAST DISSOLVING ORAL FILMS**

- Solvent casting method
- Semisolid casting
- Hot melt extrusion
• Solid dispersion extrusion
• Rolling method

**Solvent casting method**
In solvent casting method water soluble polymers are dissolved in water and the drug along with other excipient is dissolved in suitable solvent then both the solutions are mixed and stirred and finally casted in to the Petri plate dried and cut in to uniform dimensions.[28]

**Semisolid casting**
In semisolid casting method firstly a solution of water-soluble film forming polymer is prepared. The resulting solution is added to a solution of acid insoluble polymer (e.g. cellulose acetate phthalate, cellulose acetate butyrate), which was prepared in ammonium or sodium hydroxide. Then appropriate amount of plasticizer is added so that a gel mass is obtained. Finally the gel mass is casted in to the films or ribbons using heat controlled drums. The ratio of the acid insoluble polymer to film forming polymer should be 1:4.

**Hot melt extrusion**
In hot melt extrusion method firstly the drug is mixed with carriers in solid form. Then the extruder having heaters melts the mixture. Finally the melt is shaped in to films by the dies.

**Solid dispersion extrusion**
In this method immiscible components are extrude with drug and then solid dispersions are prepared. Finally the solid dispersions are shaped in to films by means of dies.[29]

**Rolling method**
In rolling method a solution or suspension containing drug is rolled on a carrier. The solvent is mainly water and mixture of water and alcohol. The film is dried on the rollers and cut in to desired shapes and sizes.[30]

**EVALUATION OF FAST DISSOLVING ORAL FILMS**

**Weight Variation**
The weight variation test is determined by measuring the weight of the individual film of 2 cm x 2 cm area. For the measurement of the weight digital analytical balance was used. The weight of three films was measure and mean is taken.[31]
Film Thickness
The thickness of strip was measured by digital venire calliper at different locations. This is essential to ascertain uniformity in the thickness of the film as this is directly related to the accuracy of dose in the strip.

Folding Endurance
This parameter was determined by repeatedly folding one film at the same place till it broke. The number of times the film could be folded at the same place without breaking/cracking is computed as the folding endurance value.

PH Value
The pH value can determine by dissolving one oral film in 10ml distilled water and measuring the pH of the obtained solution. It is necessary that film should have nearly uniform pH value.

Tensile strength
Film strip of dimension 2 X 2 cm² and free from air bubbles or physical imperfections was held between two clamps positioned at a distance of 3 cm apart. A cardboard was attached on the surface of the clamp via a double sided tape to prevent the film from being cut by the grooves of the clamp. During measurement, the strips were pulled at the bottom clamp by adding weights in pan till the film breaks.\(^{32}\)

\[
\text{Force at break} = \frac{\text{Weight}}{\text{Initial cross sectional area of film in mm}^2}
\]

Morphology study
The morphology of the films is studied using scanning electron microscopy (SEM), at a definite magnification.\(^{32}\)

Table 4: Comparison between Fast Dissolving, Tablets and Films

<table>
<thead>
<tr>
<th>Fast Dissolving Tablets</th>
<th>Fast Dissolving Films</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is a tablet</td>
<td>It is a film</td>
</tr>
<tr>
<td>Lesser dissolution due to less surface area</td>
<td>Greater dissolution due to larger surface area</td>
</tr>
<tr>
<td>Less durable as compared with oral films</td>
<td>Better durable than oral disintegrating tablets</td>
</tr>
<tr>
<td>Less patient compliance than films</td>
<td>More patient compliance</td>
</tr>
<tr>
<td>High dose can be incorporated</td>
<td>Low dose can only be incorporated</td>
</tr>
<tr>
<td>It has a fear of chocking</td>
<td>No risk of chocking</td>
</tr>
</tbody>
</table>
FUTURE CHALLENGES

Fast dissolving intraoral products face many challenges present; these challenges are mostly relate to new technologies and products.\textsuperscript{[7,33]}

- Drugs need for taste masking.
- Tablets are fragile and must be protected from water.
- A novel manufacturing process is a challenge, due to new equipment, technology and process.
- Limited drug loading due to technology limitation.
- Need more clinical trials to study more medical benefits.
- Older patient benefits by change in taste, flavour and dissolve to fast.
- Cost of the product is a major challenge.

PATENT RELATED TO FAST DISSOLVING DRUG DELIVERY SYSTEMS

A few patents granted for Fast dissolving drug delivery systems are mentioned below in table 5.

<table>
<thead>
<tr>
<th>Patent No.</th>
<th>Title</th>
<th>Year</th>
<th>Patentee / Assignee</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>US 6,099,863</td>
<td>Fast-dissolving galanthamine hydrobromide tablet</td>
<td>August 8, 2000</td>
<td>Gilis; Paul Marie Victor (Beerse, BE), De Conde; Valentin Florent Victor (Lommel, BE)</td>
<td>Gilis, et al.</td>
</tr>
<tr>
<td>US 6,197,336</td>
<td>Fast dissolving compositions having analgesic activity</td>
<td>March 6, 2001</td>
<td>Grassano; Alessandro (Milan, IT), Marchiorri; Maurizio (Milan, IT), Di Toro; Mauro (Milan, IT), Castegini; Franco (Milan, IT)</td>
<td>Grassano, et al.</td>
</tr>
<tr>
<td>US 6,358,527</td>
<td>Fast-dissolving galanthamine hydrobromide tablet</td>
<td>March 19, 2002</td>
<td>Gilis; Paul Marie Victor (Beerse, BE), De Conde; Valentin Florent Victor (Lommel, BE)</td>
<td>Gilis, et al.</td>
</tr>
<tr>
<td>US 20030161875</td>
<td>Fast dissolving tablets of cyclooxygenase-2 enzyme inhibitors</td>
<td>August 28, 2003</td>
<td>Murpani, Deepak; Arora, Vinod Kumar; Malik, Rajiv</td>
<td>Murpani, et al.</td>
</tr>
</tbody>
</table>
compositions containing cyclodextrins as taste masking agent  

<table>
<thead>
<tr>
<th>Country</th>
<th>Application</th>
<th>Patent Number</th>
<th>Date of Application</th>
<th>Inventors</th>
</tr>
</thead>
<tbody>
<tr>
<td>US</td>
<td>Fast Release Solid Formulation, Preparation and Use Thereof</td>
<td>US 20090156683</td>
<td>June 18, 2009</td>
<td>Simmons; Robert D.; (Martinsville, NJ); Tongiani; Serena; (Cranford, NJ); Freehauf; Keith Alan; (Stockton, NJ)</td>
</tr>
<tr>
<td>US</td>
<td>Fast release solid formulation, preparation and use thereof</td>
<td>US 7,968,599</td>
<td>June 28, 2011</td>
<td>Simmons; Robert D. (Martinsville, NJ), Tongiani; Serena (Cranford, NJ), Freehauf; Keith Alan (Stockton, NJ)</td>
</tr>
</tbody>
</table>

**CONCLUSION**

The study of formulating orally disintegrating dosage forms is aims at increasing the patient compliance and decreasing the disintegration time. It also aims of masking the objectionable taste of active ingredients. FDDDS have better patient compliance and may improve biopharmaceutical properties, improves efficacy and better safety, compared with conventional oral dosage forms. After the FDTs, the new products as FDOFs are intended for the application in the oral cavity and they are innovative and promising dosage form especially for use in elder patients. Thus FDT may be developed for most of the available drugs in near future. FDT need to be formulated for paediatric, geriatric, bedridden, psychotic patients, for those patients who are busy in travelling, patients. The benefits, in terms of patient compliance, rapid onset of action, increased bioavailability, and good stability make these tablets popular as a dosage form of choice in the current market.

**REFERENCE**

36. Stroppolo, Federico; Ciccarello, Franco; Milani, Rita; Bellorini, Lorenzo. Oral pharmaceutical compositions containing cyclodextrins as taste masking agent. US, 2004; 20040115258.
37. Simmons; Robert D. Tongiani; Serena; Freehauf; Keith Alan. Fast Release Solid Formulation, Preparation and Use Thereof. US, 2009; 20090156683.