**IMMIDIATE RELEASE TABLET FOR ORAL BASED FORMULATION: A REVIEW**

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**ABSTRACT**

Tablet is the popular in all dosage forms today because of its convenience self-administration. Its compactness and easy manufacturing; however in many cases immediate onset of action is required than conventional therapy. To solve drawbacks, immediate release pharmaceutical dosage form has replaced as alternative oral dosage forms. Immediate release dosage forms are those wherein ≥85% of labelled amount dissolves within 30 min. In present study characterization methods, advantages, disadvantages, tablet formulation method, ideal properties of tablet, evaluation tests, conclusion has been covered.[7]

**KEYWORDS:**

Immediate Release Tablet, Excipient, Conventional Technique [7]

**INTRODUCTION**

An immediate release dosage form used to extend market exclusivity. Immediate Release tablets are tablets which are made to disintegrate and release their medication with no special rate controlling features, like special coatings and other techniques. Many methods are used to formulate immediate release tablets. Direct compression is one of the methods that need the incorporation of a superdisintegrants into the formulation. An immediate release dosage form allows a manufacturer to extend market exclusivity, during patients a convenient dosage form or dosage regimen. Immediate release tablets are those who prepared to disintegrate and release their medication with rate controlling features, like special coatings and other techniques.

Immediate release tablets having popularity and acceptance mainly because they are easy to administer, because of its quick onset of action. They disintegrate rapidly and dissolved to release the medicaments. Immediate release may be provided for an appropriate pharmaceutically acceptable carrier. The term excludes formulations which are adapted to provide for controlled, sustained, prolonged, extended or delayed release of drug. Oral administration is the popular route for systemic effects because of its ease of ingestion, pain avoidance, and, patient compliance. Solid oral delivery systems don't require sterile conditions and so, less expensive to manufacture

**ADVANTAGES**:

1 Effective in lower concentration.

2 Aid in rapid disintegration of drug release.

3 Improved compliance.

4 Allow high drug loading.

5 More effective intragranularly.

6 Less effect on flow ability.[6]

**DISADVANTAGES:**

1 Frequent dosing is necessary for drug with short half life.

2 Drug release at a time may produce high plasma concentration which may be produce toxicity [6]

**METHOD OF TABLET FORMULATION:**

1 Wet granulation

2 Dry granulation

3 Direct compressions.

4 Slugging technique [5]

1 Wet granulation:

Wet granulation process makes fine particles into severity-feed drug manufacturing. immediate release formulation is granulated with addition into fine particles accumulation an aqueous solution of a binding polymer. Controlled release formulation granulated with addition a binder polymer solution.

2 Dry granulation:

In this process the powder mixture is compressed without using heat and solvent. Two basic procedures are to form compact of material by compression and then mill the compact to make granules. Below two methods are used for dry granulation.

3 Direct granulation:

In which tablets formulations are directly compressed from a powder blend of suitable excipients and API is called a direct compression method. Pre-treatment of blended powder by dry or wet granulation procedure is not necessary. Its provide merits mostly in terms of speedy production, as it requires less machinery, reduced number of personnel, fewer unit operations and significantly less processing time along with improved product stability .

4 Slugging technique:

This is a pre-compression technique for the formation of extra large tablets, usually of variable weight, because of poor flow of the drug powder. The resulting slugs are subsequently broken down into granules, which are recompressed to obtain the final tablets.

**IDEAL PROPERTIES:**

Immediate release dosage form should:

1 It should easily dissolve.

2 Should show first absorption and dissolution of drug.

3 Rapid onset of action.

4 It should be compatible with taste masking.

5 It should be portable without fragility concern.[6]

**TABLET MANUFACTURING:**

Following are the various unit processes which are involved in making tablets.

1 Dispensing

2 Sizing

3 Powder blending

4 Granulation

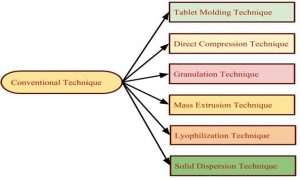
5 Drying

6 Tablet compressions

7 Packaging [3]

**CONVENTIAL TECHNIQUES USED FOR PRAPARATION OF IMMIDIATE RELEASE TABLET:**

There are many technologies are available to manufacture immediate release tablets. In this, common preparation methods are moulding, lyophilisation or freeze drying, direct compression spray drying and sublimation.



1 .TABLET MOULDING TECHNIQUE:

In this technique, water-soluble ingredients are incorporated to disintegrate and dissolve the tablet more swiftly. The hydro alcoholic solvents are used to moistened powder blend and then apply compression pressure that is lower than the conventional tablets compression to mould the tablet. The solvent is then removed by air-drying. Dissolution is enhanced by a porous structure of moulded tablets.

2. DIRECT COMPRESSION TECHNIQUE:

In which tablets formulations are directly compressed from a powder blend of suitable excipients and API is called a direct compression method.

3. GRANULATION TECHNIQUE:

It is a process of size enlargement in which small particles convert into larger agglomerates and make it physically stronger. There are 2 types of granulation techniques as following

-Dry granulation

-Wet granulation

4. MASS EXTRUSION TECHNIQUE:

In this method softening of active blend made with water-soluble polyethylene glycol and methanol and subsequent expulsion of solvent mixture's softened mass through the extruder.

**5. LYOPHILIZATION:**

It depends on simple principle i.e. sublimation. The sublimation is processed in which conversion of a substance from a solid state to vapour state, without changing in the liquid phase. Lyophilisation is performed at temperature and pressure conditions below the triple point. This procedure should be performed at low temperature.

**6. SOLID DISPERSION TECHNIQUE:**

This technique deals with challenge of mixing drug and matrix, on a molecular level, while matrix and drug are generally poorly miscible. When formulating immediate release solid dosage forms from solid amorphous dispersion for oral administration to effective use in an environment such as the GI tract of a human, it is often desirable to increase the amount of dispersion occurs in the dosage form.[5]

**EVALUATION TEST:**

1 Appearance

2 Thicknesses

3 Hardness

4 Wet variations

5 Friability

6 Disintegration

7 Uniformity of dispersion

8 Wetting time

9 Water absorption ratios

10 Drug content

11 In vitro dissolution

12 Stability studies.[7]

**CONCLUSION:**

There is opportunity for new worse oral products arising within this market segment. This technology is applicable to a wide range of therapeutic agents including generics, there by adding value, i.e. 'super generics' for veterinary or human application. Approximately one-third of the patients need quick therapeutic action of drug, resulting in poor compliance with conventional drug therapy which leads to reduce overall therapy effectiveness. A new dosage format, the immediate release pharmaceutical form has been developed which offers the combined advantages of ease of dosing and convenience of dosing. These tablets are designed to release the medicaments with an enhanced rate. Because of the constraints of the current technologies as highlighted above, there is an unmet need for improved manufacturing processes for immediate release pharmaceutical form that are mechanically strong, allowing ease of handling and packaging and with production costs similar to that of conventional tablets.[7]

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