Drug Formula – Tablet & Capsule

Tablet Drug Formula

--A tablet contains:

*Active Pharmaceutical *Ingredient (API) – therapeutic effect

*Excipients – aid manufacturing, stability, and drug release

Typical Tablet Formula:

*API : 5–50%

*Diluent (Lactose, MCC) : *20–80%

*Binder (PVP, starch) : 2–10%

*Disintegrant (SSG, CCS) : 2–8%

*Lubricant (Mg stearate) : 0.5–2%

*Glidant (Talc) : 0.2–1%

Capsule Drug Formula:

*Capsules may be hard gelatin or soft gelatin.

Typical Capsule Formula:

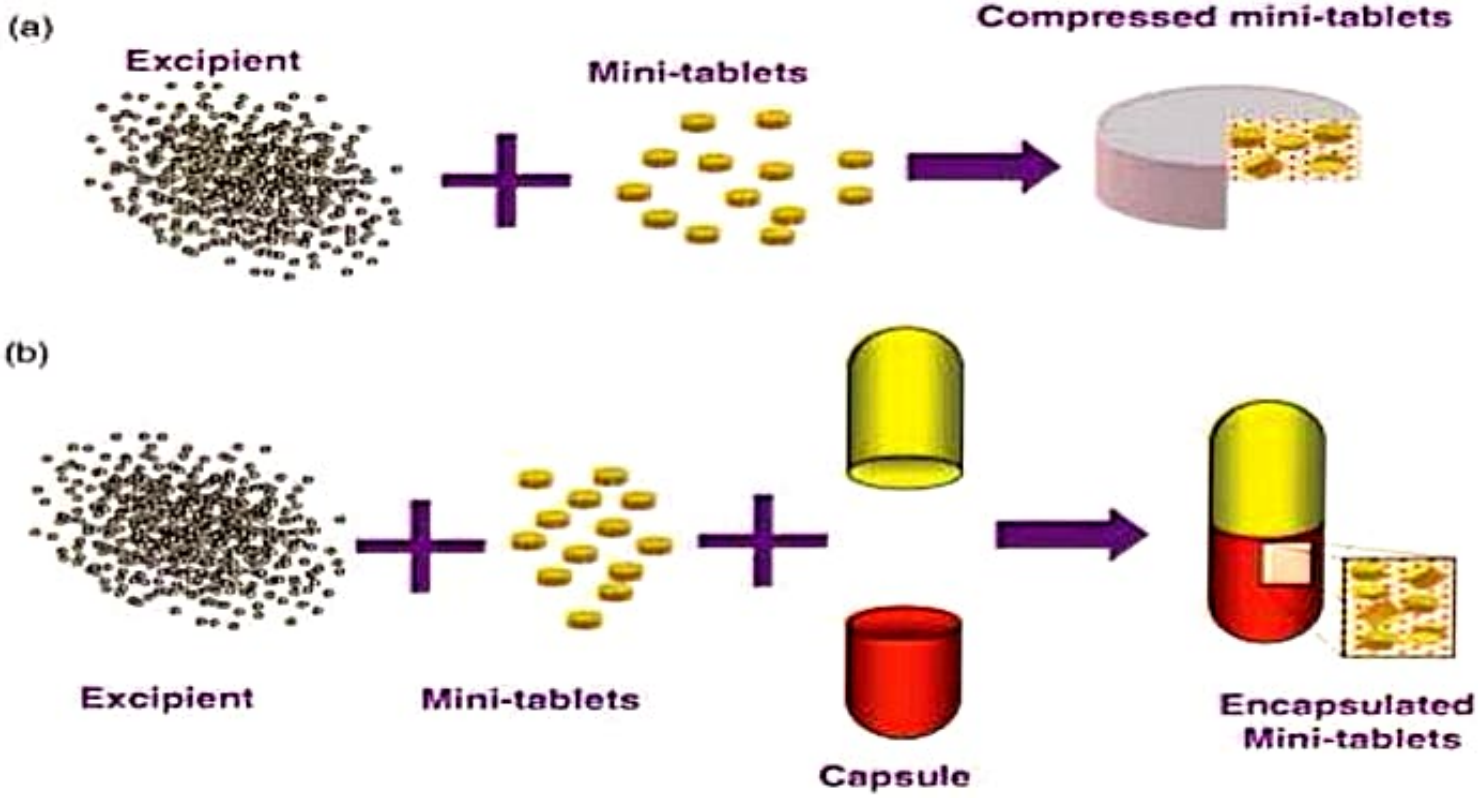
*API

*Diluent (Lactose, MCC)

*Disintegrant

*Lubricant

*Capsule shell (Gelatin + water + plasticizer)


(a)
Excipient
Mini-tablets
Compressed mini-tablets
(b)
Excipient
Mini-tablets
Capsule
Encapsulated
Mini-tablets

2: Formulation Process & Excipients Used

Tablet Formulation Process--

1.Weighing of API & excipients
2.Mixing/blending
3.Granulation (Wet or Dry)
4.Drying
5.Compression
6.Coating (optional)

Common Tablet Excipients

a.Diluent: Lactose, Microcrystalline cellulose
b..Binder: PVP, starch paste
C..Disintegrant: Sodium starch glycolate
D..Lubricant: Magnesium stearate
E..Glidant: Talc

Capsule Formulation Process

1.Blending of API with excipients
2.Capsule shell preparation
3.Filling of powder/granules
4.Sealing and polishing

Capsule Excipients

Diluent: Lactose, MCC
A..Lubricant: Magnesium stearate
B.Shell: Gelatin, HPMC (vegetarian)

3: 🙂**Stability Factors Affecting :**

Tablet and capsule

⭐**Major Stability Factors--**

1.Moisture – causes hydrolysis, shell softening

2.Temperature – accelerates degradation

3.Light – photodegradation of drugs

4.pH – affects chemical stability

5.Oxygen – oxidation reactions

👍**Stability Protection Methods**

- Use of antioxidants (BHT, sodium metabisulfite)
- Proper packaging (blister packs, HDPE bottles)
- Desiccants for moisture-sensitive drugs
- Coating of tablets

⭐**Stability Diagram**

Drug + Heat + Moisture → Degradation

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Proper Excipients & Packaging

↓

Stable Product

Edited 4:10 pm

Challenges in Tablet & Capsule Formulation

Tablet Formulation Challenges

- Poor flow properties
- Capping and lamination
- Weight variation
- Hardness vs disintegration balance
- Content uniformity

Capsule Formulation Challenges

- Moisture sensitivity of gelatin shell
- API-shell interaction
- Capsule brittleness
- Leakage in soft gelatin capsules
- Dose uniformity

Key Solutions

1* Selection of suitable excipients
2*Optimized granulation method
3*Stability testing (ICH guidelines)
4*Controlled manufacturing environment