

Capsules

Are solid dosage forms in which medicinal agent (solid, semisolid or liquid) and / or inert substance are enclosed with in a small shell of gelatin)

Advantages of capsules:

1. Accurate dosing if compared with liquid dosage forms.
2. Most of capsules are tasteless when swallowed which is not the case with oral liquid medication.
3. Capsules shapes and colors make them readily identified.
4. Capsule provided prescribing flexibility to the prescribed and accurate individualized dosage for the patient since they are available in variety of dosage strengths.
5. They are package and shipped by manufactures at lower cost and with less breakage than comparable liquid forms.
6. Empty hard gelatin capsules are often used by the pharmacist in the extemporaneous compounding of prescriptions.

Disadvantages of Capsules:

It is not suitable for irritant drugs because when the drug release in the stomach it will make an irritating concentrated solution in one area.

Type of Gelatin Capsule:

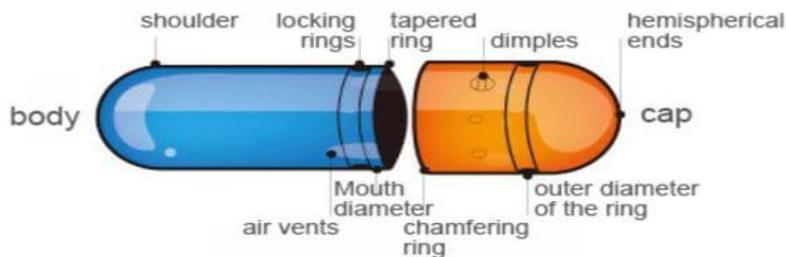
1. Hard gelatin capsules.
2. Soft gelatin capsules.
3. Enteric gelatin capsules

1. Hard gelatin capsules.

- ❖ Hard gelatin capsule composed from two main parts which are cap and body.
- ❖ Hard gelatin capsule is cylindrical with hemispherical ends.

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- ❖ The empty capsule shells are made from a mixture of gelatin, sugar and water. They may be colored with FD and C, D and C dyes. And may be made opaque by adding agents such as titanium dioxide.
- ❖ Hard gelatin capsule is used to enclose solid medicament.



2. Soft gelatin capsules.

- ❖ Soft gelatin capsule is unit dosage form without cap and body.
- ❖ Soft gelatin capsules shape either cylindrical with hemispherical end or may be spherical or oval shape.
- ❖ Soft gelatin capsules used to enclose liquid or semisolid medicament.
- ❖ Soft gelatin capsules composed from gelatin, sugar and water in larger amount than hard gelatin capsule. In addition, it contains plasticizer as glycerin to give elastic properties.
- ❖ Since it contain high amount of water with sugar so it support microbial growth so we need a preservative.



3. Enteric coated capsules.

In this type of capsules, gelatin is treated with certain material such as formaldehyde so the capsule is not dissolve in gastric PH but in intestinal PH.



Storage of Capsules:

Capsules should be stored in closed container in cool dry place (we must avoid moisture and extreme temperature because high temperature make the capsule brittle and easily broken, moisture lead to microbial growth.

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| Size of Capsule | Capacity in gm. | In mg |
|-----------------|-----------------|-------|
| 000 | 1 | 1000 |
| 00 | 0.65 | 650 |
| 0 | 0.5 | 500 |
| 1 | 0.32 | 320 |
| 2 | 0.25 | 250 |
| 3 | 0.2 | 200 |
| 4 | 0.15 | 150 |
| 5 | 0.1 | 100 |



| Empty Capsule Size | | | | | | | | | | |
|------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Capsule Size | 000 | 00E | 00 | 0E | 0 | 1 | 2 | 3 | 4 | 5 |
| Empty Capsule Volume Capacity (ml) | | | | | | | | | | |
| Capacity | 1.37 | 1.00 | 0.90 | 0.78 | 0.68 | 0.48 | 0.36 | 0.27 | 0.20 | 0.13 |

Preparation of Capsules:

1. Prepare one capsule more than the required number to avoid any loss during trituration and weighing except for potent or narcotic drug, we calculate the exact number of the required capsule.
2. Mix ingredients together with trituration by ascending order (geometrical dilution).
3. Choose suitable size of capsule.

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Rx

Bismuth carbonate grx

Kaolin grv

Ft. cap

Mitt. V cap.

Calculation:

Calculate for six capsules

Bismuth = $10 \text{ gr} * 6 = 60 \text{ gr}$

Kaolin = $5 \text{ gr} * 6 = 30 \text{ gr}$

Total weight of powder = $60 + 30 = 90 \text{ gr} = 6 \text{ g}$

Weight of each capsule = $6 / 6 = 1 \text{ g}$

The size of shell used 000 with capacity of 1000mg

Rx

Vitamin B1 150 mg (each tablet contains 300 mg)

Folic acid 1/2 tablet

Ascorbic acid 40 mg

Mitt. 5 cap

Sig. one cap. T.i.d

Calculate for six capsules

Vitamin = $150 \text{ mg} * 6 = 900 \text{ mg} / 300 = 3 \text{ tablet}$

Folic acid = $0.5 * 6 = 3 \text{ tablet}$

Ascorbic acid = $40 * 6 = 240 \text{ mg}$