

SUSPENSIONS

- **Suspensions are coarse dispersions wherein the insoluble solid particles are dispersed in a liquid medium.**
- **Sometimes the dispersed phase is in powder form and is diluted when it is used. Suspensions of instabilites are prepared in this way, which are more vulnerable.**

FEATURES REQUIRED FROM STABLE SUSPENSION

- ✘ Parenteral suspensions must have particle sizes less than 5 μm to avoid pain and irritation at the site of application.
- ✘ The seed particles should not form a solid cake. The precipitate should be readily redispersible when the flask is rinsed and the suspension should become homogeneous.
- ✘ The viscosity of the suspension should be such that it does not interfere with properties such as redispersion, swelling and passage through the syringe needle during parenteral use. When used externally, it can be applied to the skin, but it must be in a state of fluidity that will not easily move away.

- ✘ The physical stability of a pharmaceutical suspension may be defined as the condition in which the particles do not aggregate and are uniformly distributed in the dispersion medium.**
- ✘ In addition, there should be no microbiological breeding.**

FACTORS AFFECTING THE STABILITY OF SUSPENSIONS

- **Stability must be studied chemically and physically.**
- **It should be investigated whether chemical stability has lost the effectiveness of the substances in the formulation.**
- **Viscosity changes occur due to, for example, degradation of the suspending agents. The viscosity can be examined at elevated temperatures to assess the degradation of the suspension agents.**

- **Protective materials can also lose their activity by chemical degradation. Unexpected pH changes can reduce the protective effect.**
- **In addition, adsorption of the protective substance to the drug particles causes the loss of activity.**

Various tests have been applied to examine the physical stability of the suspensions.

Passive physical tests:

✘ Appearance

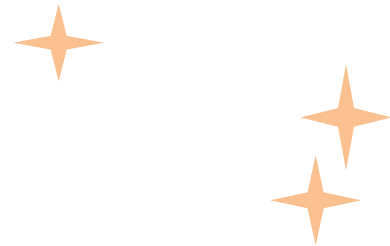
✘ Color

✘ Smell

✘ Taste

✘ pH

✘ Settling speed



- ✘ Sedimentation volume**
- ✘ Flocculation grade**
- ✘ Zeta potential measurements**
- ✘ Interaction with container and cover**
- ✘ Microscopic examination**
- ✘ Crystal size**
- ✘ Whether the active substance particles are homogeneously dispersed**