

Factor affecting the Microbial

Spoilage of Pharmaceutical Products.

(1) Nutritional factors \Rightarrow Most of the organic & Inorg. ingredients act as potential Carbon or Nitrogen substrates for Microbial growth.

[DEPTH OF BIOLOGY]

- Glucose, H₂O, C, N etc. Normally used as nutritional factor for Pharmaceutical Products.
- These factors also provides better environment for growth of microorg.
- Liq. pdt. has more chance of microbial spoilage.

(2) H₂O (Moisture Content) \Rightarrow

[DEPTH OF BIOLOGY]

Microorg. readily need water or moisture to grow. The presence of uncomplexed water in any formulation support microbial growth.

eg \Rightarrow Spoilage of dry tablets or drug due to moisture

(3) Temperature \Rightarrow Spoilage of Pharmaceuticals could

occur over the range of about 10-60°C bcz it is optimum temp. for bacterial growth (mostly Bacteria grow).

[DEPTH OF BIOLOGY]

What is why all bottles contained labelled store in cool-dry place some stored in cool-place

Syrup & multidose eye drops preparation are sometimes dispensed with the label 'store in cool place' to reduce the risk of in use Contamination. [DEPTH OF BIOLOGY]

④ PH ⇒ Extremes of PH prevent microbial attack, Antacid mixtures, Mouth washes shows growth of Pseudomonas species at Neutral PH.

- Many bacteria grow at PH range (2.5 - 5.5 - 7.5) ^{syrup}

- Acidic condition favours fungus & yeast proliferation

⇒ अब ~~PH~~ PH 5.5 तक नहीं रख सकते क्योंकि कड़वा लगेगा और कम नी कर सकते क्योंकि जैगा इसलिये हमारी मसुरी के की PH = syrup की 5.5 है। (That's why we place Expiry date).

⑤ Redox Potential ⇒ [DEPTH OF BIOLOGY]

→ The ability of microbes to grow in an environment is influenced by its oxidation-reduction Balance [Redox Potential].

eg ⇒ Vacuum packaging of food stuff or the inclusion of oxygen absorbers in the package are to minimize oxygen level & reduce Microbial spoilage.