- few microptganismstan grow below pH 3 or above pH 9 Page
 - most aqueous formulations are within the favorable pH range and therefore must be protected against microbial growth.

- To be effective, a preservative agent must be dissolved in sufficient encentrations in the aqueous phase of a preparation.
- Furthermore, only the undissociated fraction or molecular form of a preservative possesses preservative capability
- Thus, the preservative selected must be largely undissociated at the pH of the formulation being prepared.
- Acidic preservatives like benzoic, boric, and sorbic acids are more undissociated and thus more effective as the medium is made more acid.
- Conversely, alkaline preservatives are less effective in acid or neutral media and more effective in alkaline media.

Isothiozolinone



Methylisothiazolinone

- A class of tempounds that are broad-spectrum antimicrobials.
- Heterocyclic compounds.
- Derivatives of isothiazolinone commonly used as preservatives in water-based personal-care products such as shampoo.
- Also used in cooling-water systems and paper mill-water systems.
- Methylyisothiazolinone, often referred to as MIT, is one of the commonly used isothiazolinones.
 - a powerful cytotoxin
- Growing concern over the use of isothiazolinones because of sensitization and allergic reactions.