

quenching

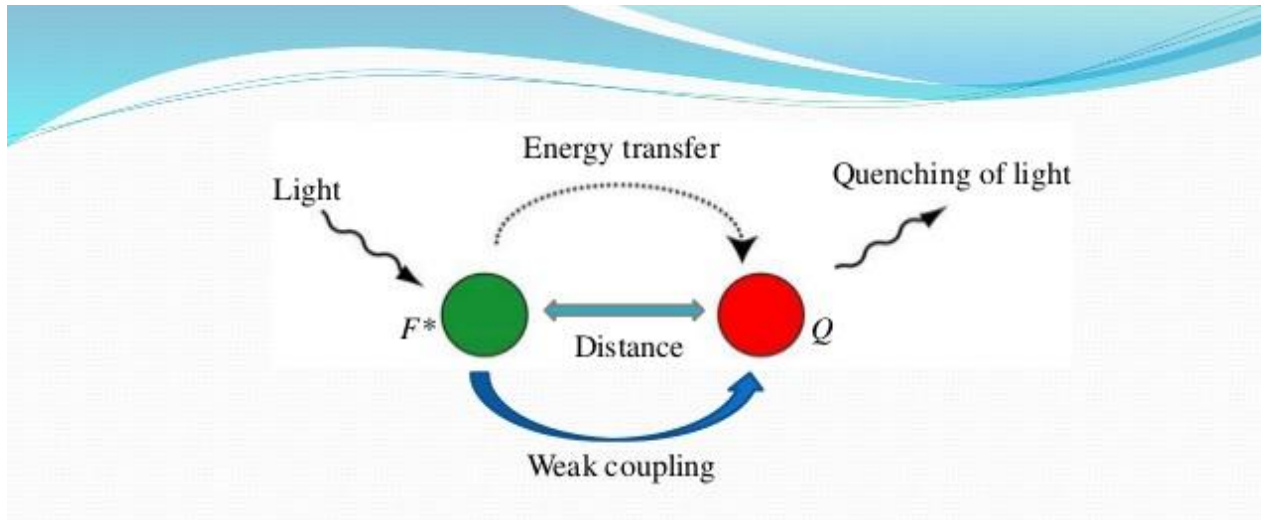


Fig : Simple mechanism of collisional quenching

Halides ions such as chlorides or, iodides are well known collisional quenchers. For example, quenching of quinine drug by chloride ion or, quenching of tryptophan by iodide ion follow collisional quenching process.

Photochemistry

quenching

- ❖ **Quenching** : - When a photochemical excited atom has a chance to undergo collision with another atom or a molecule before it fluoresces, the intensity of the fluorescent radiation may be diminished or stopped. This phenomenon is known as quenching.
- ❖ Quenching is a radiationless process involving two molecules.
- ❖ A collision between a molecule in its excited state and another chromophoric or reactive molecule is quenching, the collision-induced, radiationless relaxation of an excited state to the ground state.
- ❖ The quenching process implies an interesting kinetic competition, the treatment of which is referred to as a Stern-Volmer analysis.

photosensitized reactions

Photosensitisation

- ⇒ Certain reactions are known which are not sensitive to light.
- ⇒ These reactions can be made sensitive by adding a small amount of foreign material, which can absorb light and stimulate the reaction without itself taking part in the reaction.
- ⇒ Such an added material is known as photosensitizer and the phenomenon as photosensitisation.
- ⇒ Photosensitised reactions are spontaneous involving an increase in free energy of the system.

photosensitized reaction with example (NH₃)

Photosensitizer alone → No Effect

Light alone → No Effect

Photosensitizer AND **Light** → **Change in Organism**

Role of photochemical in biochemical processes

Biochemical Reactions

- Chemical reactions associated with biological processes are of following main types:
 - Neutralization Reaction
 - Condensation Reaction
 - Oxidation-Reduction Reaction
 - Group transfer Reaction
 - Hydrolysis Reaction
 - Reactions involved in formation or removal of a double bond with group transfer
 - Isomerization Reaction
 - Reactions involved in single bond formation by eliminating the elements of water

Order of Biochemical Tests

- Test for enzymes
- Test for metabolism of carbohydrates and related products
- Test for specific break down products
- Test to show ability to utilize a specific substance
- Test for metabolism of protein and amino acids

Photosynthesis

