

Photochemical reactions

1. (a) Photosynthesis

Explanation:

- Starch is a carbohydrate stored in plants.
- It is formed from glucose produced during photosynthesis, which occurs in the chloroplasts of plant cells.
- The general photosynthesis reaction is:

6CO2+6H2O→light, chlorophyllC6H12O6+6O26CO_2 + 6H_2O \xrightarrow{\text{light, chlorophyll}} C_6H_{12}O_6 + 6O_26CO2+6H2 Olight, chlorophyllC6H12O6+6O2

• Glucose molecules are then polymerized to form starch for storage:

$$n C_6 H_{12} O_6 \rightarrow (C_6 H_{10} O_5)_n + n H_2 O$$

- **Photolysis** refers to the splitting of water molecules during the light-dependent reactions of photosynthesis.
- Flash photolysis is a laboratory technique to study fast photochemical reactions, not a biological process in plants.

Conclusion:

Starch formation in plants is directly linked to photosynthesis.

2. (a)
$$H_2O \xrightarrow{\text{Photolysis}} OH^- + H^+$$

- **3.** (c) Stark Einstein was given the law of photochemical equivalence.
- **4.** (b) In photochemical reaction the rate of formation of product is directly proportional to the intensity of absorbed light.

