



Question 1. How are fats digested in our bodies? Where does this process take place?

Solution:

The small intestine is the site of the complete digestion of carbohydrates, proteins and fats. It receives the secretions of the liver and pancreas for this purpose. The food coming from the stomach is acidic and has to be made alkaline for the pancreatic enzymes to act. Bile juice from the liver accomplishes this in addition to acting on fats. Fats are present in the intestine in the form of large globules, which make it difficult for enzymes to act on them. Bile salts break them down into smaller globules increasing the efficiency of enzyme action. The pancreas secretes pancreatic juice, which contains enzymes like trypsin for digesting proteins and lipase for breaking down emulsified fats. The walls of the small intestine contain glands, which secrete intestinal juice. The enzymes present in it finally convert the proteins to amino acids, complex carbohydrates into glucose and fats into fatty acids and glycerol.

Question 2. What is the role of saliva in the digestion of food?

Solution:

When we eat something we like, our mouth 'waters'. This is actually not only water, but also a fluid called saliva secreted by the salivary glands. Another aspect of the food we ingest is its complex nature. If it is to be absorbed from the alimentary canal, it has to be broken into smaller molecules. This is done with the help of biological catalysts called enzymes. The saliva contains an enzyme called salivary amylase that breaks down starch, which is a complex molecule to give sugar. The food is mixed thoroughly with saliva and moved around the mouth while chewing by the muscular tongue.

Question 3. What are the necessary conditions for autotrophic nutrition and what are its byproducts?

Solution:

Carbon and energy requirements of the autotrophic organism are fulfilled by photosynthesis. It is the process by which autotrophs take in substances from the outside and convert them into stored forms of energy. This material is taken in the form of carbon dioxide and water, which is converted into carbohydrates in the presence of sunlight and chlorophyll. Carbohydrates are utilised for providing energy to the plant. The carbohydrates, which are not used immediately, are stored in the form of starch, which serves as the internal energy reserve to be used as and when required by the plant.

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