

2. Beyond the Sense of Taste

Let us assess

1. Question

Identify the correct statements with regard to bile.

- A. Secreted in liver
- B. Enzymes are seen
- C. Secreted into the stomach
- D. Converts fat into tiny particles

Answer

Bile is a green/yellow coloured slightly alkaline liquid secreted by the hepatocytes of the liver. Bile is a type of detergent which helps in the emulsification of fats i.e. breakdown of fats into smaller particles called micelles. The secreted bile is stored in gall bladder.

2. Question

Complete the table related to the process of digestion in humans.

Part of digestive tract	Enzyme	Action
Mouth	Starch → Maltose
.....	Pepsin
Small intestine	Maltose → Glucose
.....	Peptidase

Answer

Part of digestive tract	Enzyme	Action
Mouth	Salivary amylase	Starch → Maltose
Stomach	Pepsin	Proteins → Peptones
Small intestine	Maltase	Maltose → Glucose
Small intestine	Peptidase	Peptides → Amino acids

The food we eat undergoes mechanical and chemical digestion before getting absorbed in the blood stream. This digestion of food is carried at various sites such as mouth, stomach, small intestine and to a less extent in large intestine with the help of enzymes.

a.) The mouth is the first site of chemical digestion. It produces saliva which has amylase enzyme which acts on carbohydrate content and breaks down then into smaller molecules. It carries a few digestions only.

b.) Stomach is the site where protein digestion begins at first by the enzyme secreted in the stomach known as pepsin. Pepsin works on proteins by breaking the peptide bonds which hold the molecule together.

c.) Partially digested food enters small intestine through stomach. It is the principal site where digestion of different biomolecules occurs. It secretes a variety of digestive enzymes which act on partially digested food and get digested and absorbed. One such enzyme is maltase which acts on partially digested carbohydrates and breaks them down into glucose units by breaking glycosidic bonds.

d.) Small intestine is the major site of protein digestion by secreting peptidase which acts on proteins and peptides and breaks them into amino acids.

3. Question

How does the structure of the small intestine help in increasing the surface area of absorption?

Answer

Small intestine is the major site of digestion and absorption of biomolecules. Approximately 80% of the ingested food is digested here. It is roughly 21 feet in length which implies for plenty of space. So, to increase its capacity of absorption: -

- a.) The wall of small intestine is thrown into a series of folds which increases the surface area known as plicae.
- b.) The innermost layer of the wall of small intestine, the mucosa contains 4 to 5 million microscopic fingers like projections known as villi. Each villi has in its core a capillary network to pick up absorbed nutrients.
- c.) In addition, each of the epithelial cells in the surface of the villi has a brush border of microvilli. It further increases the capacity of absorption.