



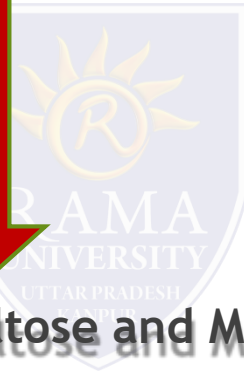
FACULTY OF ENGINEERING & TECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY

Starch, Glycogen and dextrans
(Large polysaccharide molecules)

α -Amylase



Glucose, Maltose and Maltotriose.
(Smaller molecules)



Drawback

- ◆ Shorter duration of food in mouth.
- ◆ Thus it is incomplete digestion of starch or glycogen in the mouth



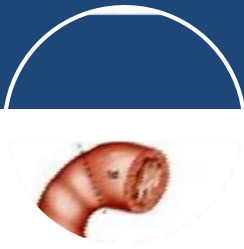


Digestion in the Stomach

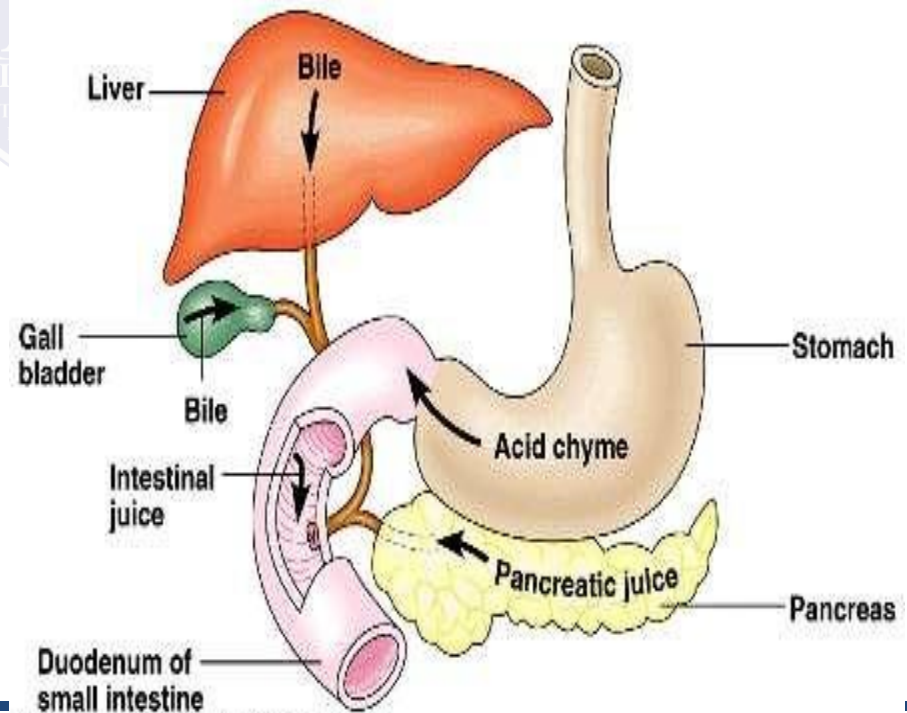
- ◆ There is no enzyme to break the glycosidic bonds in gastric juice.
- ◆ However, HCl present in the stomach causes hydrolysis of sucrose to fructose and glucose.



Digestion in Duodenum



- ◆ Food bolus reaches the duodenum from the stomach where it meets the pancreatic juice.
- ◆ Pancreatic juice contains a carbohydrate splitting enzyme, pancreatic amylase (**amylapsin**) similar to salivary amylase.



Action of pancreatic amylase

- ◆ It is an α - Amylase
- ◆ Optimum pH=7.1
- ◆ Like ptylin, it requires Cl^- ion for its activity.
- ◆ It hydrolyses α -1 \rightarrow 4 glycosidic linkages situated well inside polysaccharide molecules.
- ◆ Note: *Pancreatic amylase, an isoenzyme of salivary amylase, differs only in the optimum pH of action. Both the enzymes require Chloride ions for their actions (Ion activated enzymes).*

Reaction catalyzed by pancreatic amylase



Starch/Glycogen

Pancreatic Amylase

**Maltose/ Isomaltose
+
Maltose/ Isomaltose
+
Dextrins and
oligosaccharides**

