

Digestion & Absorption of Nutrients

Chemical reactions in digestion process: The first reaction is hydrolysis or splitting with the help of water. Carbohydrates, fats and proteins break up with the addition of water into smaller molecules, which the tissues can use.

The chemical reaction is accelerated by enzymes, which are secreted in the mouth, stomach and small intestine. Enzymes are living catalysts that increases the speed of biological reactions, without being a part of the compound form. The enzymatic reactions which take place in the digestion process are presented below

Enzymatic Reaction In Digestion				
Place of Action	Enzyme	Optimum pH	Substrate	Products of Reaction
Mouth	Salivary amylase (Ptyalin)	7.0	Cooked starch	Dextrins, Maltose
Stomach	Pepsin (protease)	2.0	Proteins	Polypeptides
	Rennin	6.0-6.5	Milk, casein	Calcium caseinate
	Lipase	7.0	Emulsified Fats	Fatty acids, glycerol

Small Intestine	Pancreatic Juice			
	Trypsin (Protease)	8.0-9.0	Proteins	Polypeptides, some amino-acids
	Lipase	7.0	Fats	Di and Mono-glycerides, fatty acids, glycerol
	Amylase	7.1	Starch	Maltose
	Intestinal Juice			
	Peptidases (Erepsin)	8.0	Peptones, polypeptides	Amino acids
	Sucrase	5.0-7.0	Sucrose	Glucose, Fructose
	Maltase	6.7-7.2	Maltose	Glucose (2 molecules)
	Lactase	5.4-6.0	Lactose	Glucose , Galactose