

Life process

Digestion in Ruminants

❖ Digestion in Ruminants:

Ruminants are referred to the plant-eating mammals including sheep, goat, deer cattle, buffaloes, bison, giraffes, yaks, etc. These cud-chewing mammals have four chambers of stomachs used for their digestion. These species obtain their nutrition from plant products by adapting to a certain process called rumination. Through the action of rumination, they ferment the food, regurgitate and chew their food before the main digestion process.

The digestion process in Ruminants is completely different from humans. The general process of the food digestion begins from the mouth to the food pipe, from the stomach to the intestine and continues. In ruminants, this process is completely different.

Let us study in brief about the digestion process in Ruminants.

As we all come across many cows, buffaloes and other cattle's roadside, which are always seen chewing food even though they don't have food near them. This is because the digestion process in Ruminants begins by chewing and swallowing its food. The main diet for these animals includes grass, leaves and other parts of plants. The plant products have high fibre content and to digest the fibre present in the food which they eat, an enzyme called cellulase is required which is not produced by the animals themselves. The stomach of these herbivores is divided into 4 chambers, among which the most important one is the rumen, as it plays a major role in digesting the fibre present in the food.

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The digestion process in Ruminants begins by chewing and swallowing its food. Ruminants do not completely chew the food they eat, but just consume or gulp as much they can and then swallow the food. This is actually an adaptation by which these animals have evolved to spend as little time as possible feeding so that they are not hunted down by any predators while they are eating.

As mentioned earlier, the stomach of these Ruminants is divided into 4 chambers – rumen, reticulum, omasum, and the abomasum.

The process of digestion begins with the first two chambers of the stomach, the rumen and reticulum by softening the ingested matter. Later the microbes present in the rumen produces the cellulase enzymes required to digest the cellulose.

Once the plant fibres have been broken down to provide vitamins, proteins, and other organic acids, the nutrients are absorbed into the animal's bloodstream.

Coarse plants are sent further into the next chamber for further digestion. Here is where the further bacterial action takes place and the food is formed into soft chunks called the cud.

This cud produced is regurgitated back into the animal's mouth where they can be chewed again. The saliva of the cow greatly aids in digesting the cud. After chewing, the food bypasses the two chambers of the stomach and directly enters the third chamber. The walls of the third chamber mash and compact the food molecules further, and then pass it to the fourth chamber – the abomasum. The final digestion in the stomach is carried by the abomasum and then passed to the intestine.