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Polisacaridos almidon pdf

Glycogen, starch and cellulose are glucose polymers, i.e. they are formed by binding many glucose molecules. This section examines its structure and then analyzes its functions and reactions that lead to its synthesis and degradation. Just as a peptide bond allows two amino acids to bind together, a glucose bond allows two carbohydrates to bind together. To see how this type of interaction is established, Figure 12.9 shows the binding of two molecules - D - glucose to form a dries disaccha, which is known as maltose. In general, glycoside binding is formed by the reaction of oxidil monosacharide with another molecule, equal to or another, monosacharide. In a particular case, Figure 12.9 found that the two glucoses that react are as isomers (carbon OH 1 is down); The reaction is performed with OH attached to carbon 1 of one molecule and carbon 4 another. The water molecule is produced and oxygen forms a link between the two mentioned carbons, it is a glycoside bond. If isomerism is and the carbon atoms that form binding are one carbohydrate and m another is said to have joined the glucose-like connection - - m. Link to figure 12.9 - 1 - 4. As an example of this, figure 12.10 shows the structure of dysacchacharides, which is formed by binding two molecules - D - glucose. This compound is called cellophate, and in this case the established bond is called glucose-related - 1-4.STRUCTURE AND FUNCTION OF STARCHThe starch is a polymer formed by the binding of molecules - D - glucose associated with glucose-related - 1 - 4. There are two types of starch, amylosine and amylopectin, the first of which consists of glucose chains associated with each other in the form and with the specified isomeria. Amylopectin has the same structure as amyloid, but also has branches - 1 - 6. Figure 12.11 shows the structure of the amilos and 12.12 amilopectin. Figure 12.11 Emilos structure. (Illustration by the author). Figure 12.12 Structure of amilopectin. (Illustration by the author). Unlike proteins that are formed by binding 20 different amino acids, starch is a polymer that does not store information; It consists only of binding glucose molecules and words cannot be constructed with a single letter. Instead of information, this connection stores energy. When, at any given time, you have more glucose molecules than you need, the plant cells accumulate them by connecting to each other, thus forming Starch. When energy is needed and glucose is not available, starch molecules are hydrolyzed to provide the necessary energy. Thus, starch is a reserve of energy polymer found in vegetables. There are many starch-rich plant foods, such as some seeds, such as corn, wheat, etc., accumulate it and when the germination process begins, the embryo has a abundant source of carbohydrates, which is important since at the time it does not yet do photosynthesis and requires an external food source. Plants also store starch in other structures, such as roots that form tubers such as potatoes or sweet potatoes. In this type of plant, when winter comes, the air part dries up. Over the course of the cold season, the roots have new shoots that are initially fed with glucose, which was stored during the previous season. STRUCTURE AND FUNCTION OF GLUCOGENThe glycogen is another glucose polymer, its structure is identical to the structure of amylopectin, that is, consists of binding molecules - D glucose, on glucose bonds - 1 - 4 and with branches - 1 - 6, but glycogen has more of them. In addition, glycogen is produced by animal cells, not vegetables. Glycogen is a compound that also serves as an energy reserve. The remaining glucose molecules, for example, after a diet, are stored this way. The liver or muscle cells thus store a large amount of glucose. One of the functions of the liver is to keep the concentration of glucose in the blood constant. When the blood is excess glucose, the liver tissue lifts it up and hepatocytes produce glycogen; When blood glucose decreases, liver cells are hydrolysed glycogen and glucose is released into the bloodstream, offsetting the level of six-finger water. Skeletal muscles, when at rest and there is excess glucose, stores a large amount of glycogen, which will degrade when this organ is required to quickly come into contraction, since in these conditions it needs high concentrations of glucose to get energy and cannot wait for this compound to reach it out of the blood, since the body's life can be put at stake. STRUCTURE AND FUNCTION OF CELLULOSEIn vegetables is another glucose polymer that is known as cellulose, and which consists of binding molecules - D - glucose-related glucose bonds - 1 - 4. Cellulose is an untied polymer. (Figure 12.13). Figure 12.13 Pulp Structure. (Figure compiled author). Polysaccharides are the most common group of carbohydrates. They are the main structural components and reserves of plant energy; 60 to 90% of the plant's mass. Polysaccharides are almost exclusively glucose polymers that are associated with glycoside bonds. Molecular masses of polysaccharides range from billions to millions. Unlike low molecular mass carbohydrates, polysaccharides are not sweet and have no mutartation. As a group, they tend not to react because their heliacetalic groups are connected by glycoside bonds. Starch starches are the most important backup plant polysaccharides. If excess glucose enters the plant's cell, it is bound by an enzyme to the end of starch molecules and stored for longer use. When the cell cannot get the right amount of glucose outside, it hydrolyses the starch to release glucose. Starch is stored in relatively large pellets in the cytoplasm. Consumer starches are found in potatoes, rice, corn and many other vegetable sources. Two different polymeric structures make up starch: amylose and amylopecin. About 20% of most starch is amila and 80% amilopectin. Emulos molecules consist of approximately 200-2000 glucose molecules associated with glycoside a-1.4 bonds in uncollected chains. The glucose molecules in the amylot (see 3d) are spiraled in the form of a propeller. To some extent, the amilo dissolves in hot water. In fact, solubility amylasia is associated with the formation of colloidal suspension. The structure of amilopectine (type 3d) is very different from the amilos. Amilopectin molecules contain glycoside bonds a-1.4 and a-1.6, regularly blurred (every 25-30 glucose residues). Glycoside bonds bind glucose molecules in the main chain of amilopectin. There are often branches of the main chain, which are caused by glycoside bonds a-1.6 with other glucose molecules. The molecules of amilopectin are much larger than the molecules of the amilos; some contain 10,000 to 20,000 units of glucose. Amilopectin is essentially insoluble in hot water. Glycogen glycogen, sometimes called animal starch, has a structure and function similar to plant starch. It is useful as a glucose reserve for many tissues, although it is mostly concentrated in the liver and muscles. When blood glucose concentrations decrease, the liver hydrolyses glycogen, which releases glucose to replace If there is excess, the liver converts it into glycogen. The structure of glycogen (see 3D) is similar to amilopectin, but much more branched. Branches occur every 8 to 10 glucose molecules in the main chain. Like amilopectin, the strings are the result of glycoside a-1.6 bonds. Most glycogen molecules have a molecular mass of several million. Glycide stocks: Glycogen virtually all of the glu acid we consume is converted into glucose and absorbed by the gut. They are then moved to the liver, where they are converted into glycogen, which is an energy reserve substance that will be used during periods when there is no glucose (between meals). If necessary, glycogen is converted into glucose, which enters the bloodstream for use in various tissues. Glycogen is also stored in the muscles, but this energy reserve is only used to produce energy within the muscle itself in situations that require rapid and intense muscle activity (escape or defense situations). Glycogen is stored for a maximum of about 100 grams. in the liver and about 200 grams. in the muscles. If this limit is reached, excess blood glucose is converted into fat and accumulated in adipose tissue as a long-term energy reserve. Unlike fats, glycogen retains a lot of water and remains swollen in the body. When consuming glycogen, after a period of fasting or intense exercise, the water that retains -1 kilogram roughly is also lost, so it may seem that the weight has been reduced. This water is restored as soon as it is eaten again. All metabolic processes associated with glycides are controlled by the central nervous system, which through insulin removes glucose from the blood when its concentration is very high. There are other hormones such as glucagon or adrenaline that have the opposite effect. Diabetics are people who have either lost the ability to secrete insulin, or their tissue cells are unable to recognize it. Diabetics cannot use or remove glucose from their blood, so they are easily malnourished and exposed to several conditions. Glycemic Index When we take any glycid-rich food, blood glucose levels gradually increase as they are digested and absorbed into the starches and sugars they contain. The rate of digestion and absorption of different foods depends on the type of nutrients that make up it, the amount of fiber present and the composition of other foods present in the stomach and intestines during the To assess these aspects of digestion, the glycemic food index has been identified as a link between the 50g absorption curve area. pure glucose over time so that it is obtained by eating the same amount of said food. This index is important for diabetics, as they should avoid a rapid increase in blood glucose levels. The daily needs of buttocid buttocks should contribute 55 or 60 percent of the calories in the diet. One could live for months without taking carbohydrates, but a minimum amount of about 100 grams is recommended. daily to avoid insufficient combustion of proteins and fats (which produces ammonia and ketones in the blood) and loss of structural proteins of the body itself. The maximum amount of glyside that we can consume is limited only to its caloric content and our energy needs, i.e. obesity we can tolerate. Cellulose (type 3d1) (type 3d2) is a structural polysaccharide; is a structural component of plant cell walls. More than 50% of the carbon contained in plants is part of cellulose molecules. Cotton fiber is almost pure cellulose while about half wood is pulp. Full cellulose hydrolysis produces glucose; cellulose molecules are not compressed enough and resemble amylose in their overall structure. However, glucose molecules in cellulose have glycoside bonds of -1.4, rather than a-1.4 glycoside bonds found in starch and glycogen. Since animals do not have an enzyme for hydrolysis glycoside bonds 1.4, cellulose is inert in most animals. Some bacteria that live in the intestines of animals possess this enzyme; therefore, animals have minimal hydrolysis of cellulose. It has an important digestive function that adding fiber to the diet, which helps the movement of materials through the intestines and prevents constipation. Cellulose is one of the most valuable commercial compounds out there. It is used in clothing in the form of cotton or chemically modified to a modified form of cellulose called the area. Chemical treatment of cellulose can lead to cellophane. Wooden pulp is converted into paper and thousands of paper products. The main component of fiber that we shed with diet is cellulose. It is present in vegetables, fruits, nuts, whole grains and whole legumes. They are molecules so complex and resistant that we are unable to digest them and reach the colon without assimilation. Other common components of dietary fiber hemichelulose, lignin and p'ctic substances. Some types of fiber retain their water weight several times, so they are the basis of good intestinal mobility by increasing the volume and softening of intestinal residues. Because of the effect it causes when nutrient absorption is delayed, it is indispensable in the treatment of diabetes to prevent rapid growth of blood glucose. It also provides some energy by absorbing fatty acids that are released from fermentation under the influence of intestinal flora. Finally, it serves as ballast and cleansing material of the colon and small intestine. When cooking, vegetable fiber changes its consistency and loses some of these properties, so it is advisable to impregnate some of the raw vegetables of the diet. Raw. polisacaridos almidon glucogeno celulosa. polisacaridos almidon estructura. polisacaridos almidon glucogeno celulosa quitina. polisacaridos almidon y glucogeno. polisacaridos almidon y celulosa. investigacion de polisacaridos almidon. polisacaridos sin almidon. polisacaridos que forman el almidon