FREQUENTLY ASKED QUESTIONS:

1. What are polysaccharides?

Ans) Polysaccharides are carbohydrates consisting of monosaccharides bound to each other by glycosidic linkages. The general scientific term for polysaccharides is *glycans*.

2. What are the different forms of glycans?

Ans) Polysaccharides which consist of one type of sugar structural units are known as homoglycans, and polysaccharides which consist of several types of sugar units are heteroglycans. The monosaccharides may be joined in a linear pattern(as in cellulose and amylose) or in a branched fashion(amylopectin,glycogen,gu aran)

3. How are dextrins distinguished from amylose?

Ans) Both the polysaccharides are composed of entirely of glucose units linked together and have the same structure but the difference is in the chain length(n):dextrins have shorter chain length while as amylose has longer chain length(200 glucose molecules)

4. Identify the two starch fractions & expain how they differ?

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Ans) Starch, a glucose polymer comprises of two fractions: amylose amylopectin. The simpler of these is amylose, which is a very large molecule consisting of more than 200 glucose units linked by1,4-a-glycosidic linkages in a linear configuration while as the amylopectin is a branched fraction of glucose units linked by 1,4-a-glucosidic linkages, but interrupted occasionally with a 1,6linkage resulting in a very large polysaccharide.

5. Describe the chemistry of pectic substances and compare them with starch?

Ans) The actual building block is a derivative of galactose ,a uronic acid called galacturonic acid. This acid is polymerized as a long chain of galacturonic acid units linked in a 1,4-a-glycosidic linkage and with varying degree of methylation. Starch, a glucose polymer comprises of two fractions: amylose & amylopectin. Amylose is a straight chain ,slightly soluble starch fraction consisting of glucose units linked by 1,4-a-glycosidic linkage that are formed by the loss of water molecule. Amylopectin is branched fraction linked by 1,4-a-glycosidic linkage, but interrupted occasionally with a 1,6 linkage resulting in a very large polysaccharide.

6. What are carrageenans & what are its different types?

Ans) Carrageenan are a group or family of sulfated galactans

extracted from red seaweeds. Carrageenans are linear chains of D-galactopyranosyl units joined with alternating (1 3)- β -D- and (1 4)- β -D-glycosidic linkages, with most sugar units having one or two sulfate groups esterified to a hydroxyl group at carbon atoms C-2 or C-6.There are three different types of carrageenan: kappa (k), iota, (i), and lambda (I).

7. What are the parameters that need to be kept in mind while using cellulose in food processing?

Ans) The parameters that must be considered are: (a) the chemical structure of the polymer; (b) the molecular weight of the polymer; (c) the presence of other active ingredients in the food matrix; (d) the processing operations to which the food will be subjected; and (e) the physical properties, including fiber dimension of the polymer.

8. What are the applications in cellulose in food technology?

Ans).Cellulose has a wide range of applications in food technology. some of them are enlisted below:

- Cellulose and its physical and chemical derivatives have long been used in fabricating formulated foods.
- The physically modified celluloses are useful in many prod-

ucts where bulk properties are desirable . This would include reduced- or low-calorie foods, flavor oil imbibers, or flowable products such as artificial sweeteners and flavor packets.

 The use of these cellulosics is generally due to their rheology, controlled water interaction, and textural attributes, and not to solubility or other chemical properties

9. Enlist different polysaccharides having bacterial origin?

Ans) Xanthan commercially known as xanthan gum is obtained from *Xanthomonas campestris*. Gellan gum obtained from *Pseudomonas elodea*

Curdlan is a bacterial polysaccharide produced by *Agrobacterium biovar*.

10. What are pregelatinized starches?

Ans)Pregelatinized starches are those that are cooked and dried to give products that readily disperse in cold water to give moderately stable suspensions.They are used in the preparation of instant puddings,pie fillings,soup mixes,salad dressings,etc

11. Carrageenans are mainly used in dairy products, explain?

Ans) It is because they form stablizing complexes with milk proteins and suspended cocoa powder in milk, and give a more

acceptable texture to processed cheese & creams.

12. Why are starches modified?

Ans) Starches are modified for improving gel strength and clarity, greater paste stability and paste viscosity and they become more whiter in color.

13. What are the health benefits of dietary fibre?

Ans) Dietary fibre are beneficial in number of ways. They have the ability in lowering excessive cholesterol synthesis, lower high blood pressure, decrease blood-glucose level, and also have antioxidative properties.

14. What are gums?

Ans) Gums are the complex carbohydrates of plant origin, usually containing galactose and at least one other sugar or sugar derivatives, but excluding glucose.

15. Write the applications of food polysaccharides in general?

Ans) Polysaccharides are abundant in nature, and a rich source of biomass, vital sources of nutrition for humans and animals in the form of cereals and grasses, not only as essential bulk foodstuffs but also as additives used in lesser amounts. They

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show unique properties as thickening, stabilizing, gelling, and emulsifying agents. These features are enhanced by blending polysaccharides of different type, or by mixing them with protein or other noncarbohydrate food constituents.

