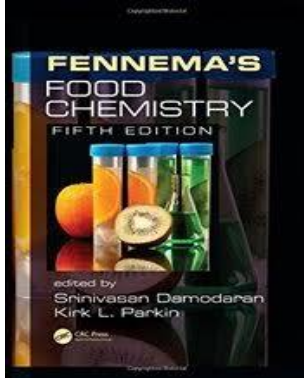


Food Chemistry I

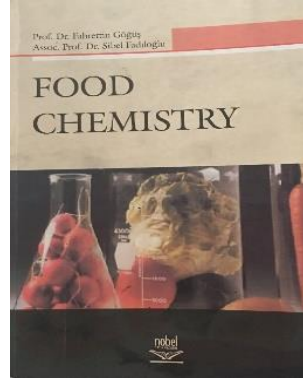


These materials have been prepared by H. Elif Kormalı Ertürün for educational purposes only (as lecture notes) using the following resources. Responsibility for reproducing any part of these materials in any form or by any means or stored in a retrieval system for different purposes, rests with the third person performing the action.

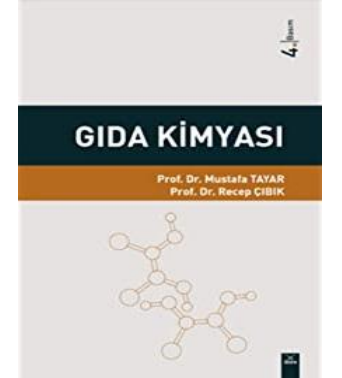
1.



2.

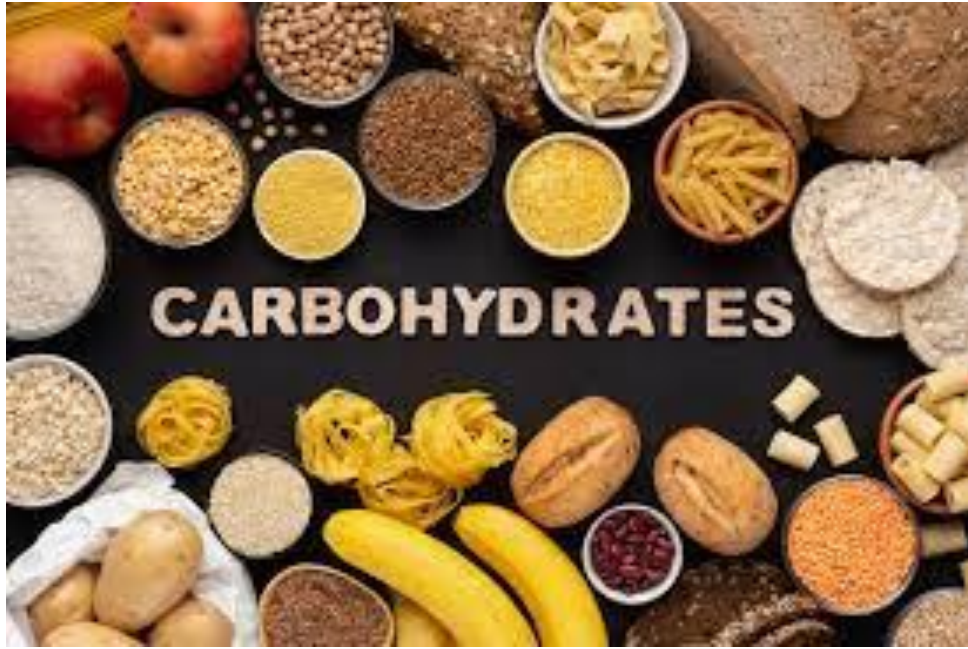


3.



1. Fennema O.R., Ed: Damodaran S. and Parkin K.L. 2017. *Fennema's Food Chemistry*, CRC Press Taylor & Francis Group Boca Raton, FL, USA.
2. Göğüş F. and Fadılođlu S. 2006. *Food Chemistry*, Nobel Akademik Yayıncılık, Ankara.
3. Tayar M. ve Çıbık R. 2013. *Gıda Kimyası*, Dora Basın-Yayın Dağıtım Ltd. Şti., Bursa.

CARBOHYDRATES (SUGARS)



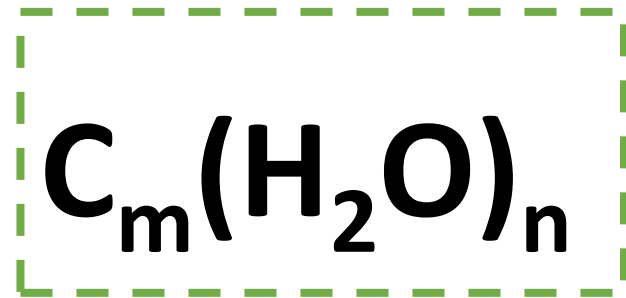
Carbohydrates (sugars) are one of the major components in foods.

They have many

- different molecular structures, sizes, and shapes
- exhibit a variety of chemical and physical properties
- differ in their physiological effects on the human body

Carbohydrates also serve as

- (1) a shortterm energy source for all organisms
- (2) structural molecules in plants
- (3) storage forms of foods in plants and animals



m could be different from n

polyhydroxy aldehydes and ketones

Carbohydrates can be classified according to their different characteristics:

According to the presence in foods

According to their functions

According to Chemical Structures

According to the size of its molecules

According to the presence in foods:

1. Vegetable carbohydrates: All types of sugars, starch, cellulose
2. Animal carbohydrates: Milk sugar, blood sugar, glycogen

According to their functions:

1. Skeleton Component Carbohydrates (Cellulose, Hemicellulose, Chitin)
2. Carbohydrates with Reserves (Starch, Glycogen, Inulin)
3. Carbohydrates with Gelling Agent (Pectin, Agar-agar)

According to Chemical Structures (Number of Carbon Atoms and Kind of Carbonyl Group):

1. Trioses

(Glyceraldehyde, Dihydroxyacetone)

2. Tetroses

(Erythrulose, Erythrulose, Threose)

3. Pentoses

(Ribose, Deoxyribose)

According to the size of its molecules (Number of Saccharide Units):

1. Monosaccharides (Simple sugars)
2. Oligosaccharides
3. Polysaccharides

Carbohydrates in food can also be classified as *simple* or *complex*.