

STEM in Food Science in Technology and Living

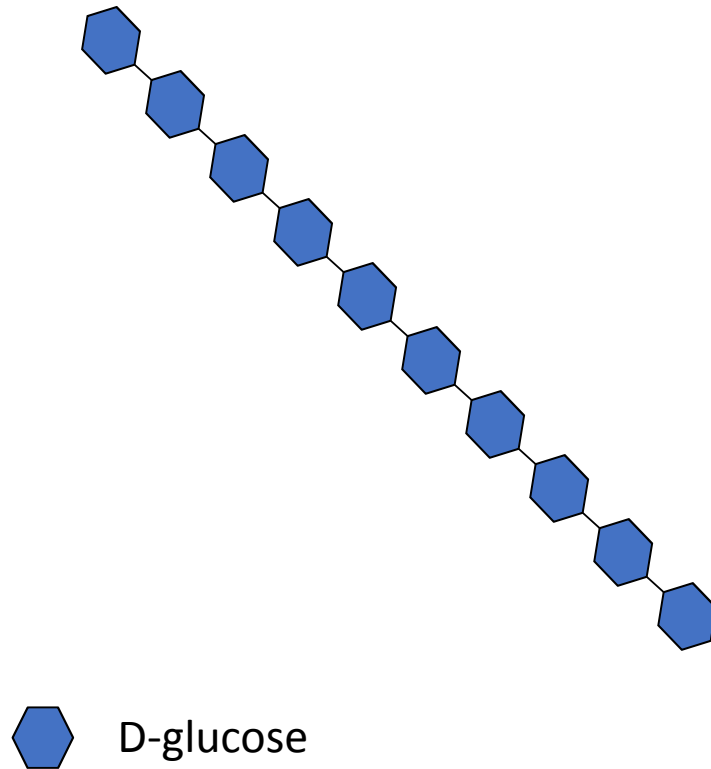
Starches in Food

Gelatinisation of Starch

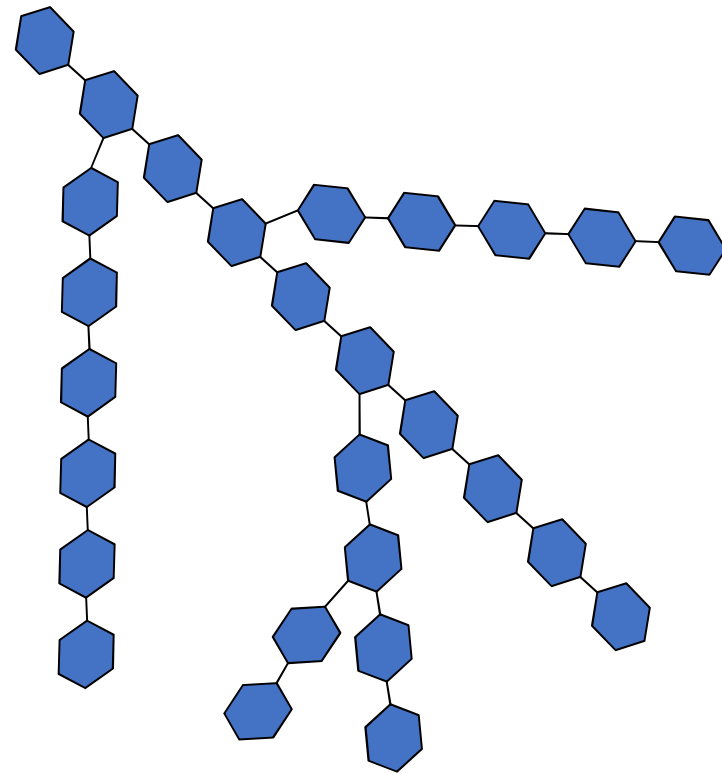
- Takes place under moist heat
- Starch granule swells, becomes soft and digestible
- Loss of amylose from the swelling granule
- Gelatinisation temperature depends on the type of starch
- Produces a thick cooked paste or fluffy mesh in cooked starchy vegetables
- Occurs during the cooking of sauce, porridge, pasta, pudding, steamed rice, baked potatoes etc.
- Can be applied to:
 - thicken sauces
 - set puddings and cold sweets
 - improve textural quality of food products such as viscosity, gumminess, smoothness etc.
 - disperse or suspend ingredients within a mixture, such as drinks, soup, salad dressing etc.

Gelatinisation of Starch

- Amylose molecule



- Amylopectin molecule



Gelatinisation of Starch

- Swelling and disorganisation of starch granules when heated with the presence of water
- Measures of gelatinisation
 - swelling of granules
 - increased viscosity (thickness or stickiness)
 - increased translucency
 - increased solubility

Gelatinisation of Starch

- Factors affecting gelatinisation
 - ratio of amylose to amylopectin
 - amount of water
 - heating time
 - presence of other substances

Related Food Tests

Food Test Number	Food Test
Food Test 1	Making of blueberry sauce
Food Test 2	Observe gelatinisation of starch by adding hot water

Related Teaching Materials

File	Teaching Materials
Time Plan for Gelatinisation of Starch	- Principles for Writing Time Plan for Conducting Food Tests - Sample Time Plan: Gelatinisation of Starch