

THE MOLECULAR STRUCTURE OF PECTIN



PECTIN OCCURS NATURALLY IN PLANTS

In nature, pectin is a fibre found in the soft, non-woody parts of plants, where it helps to bind the plant's cells together.

The pectin used in food and beverage products is extracted from fruits such as apples, oranges, lemons and limes.

Pectin is a natural polymer, which means it contains large molecules comprised of many smaller molecular sub-units.

Pectin molecules are long and easily tangle with each other. In food and beverage products, this results in a thickening of the texture. Pectin ingredients can be modified to create different degrees of thickening.



GALACTURONIC ACID

The main component of pectin – comprising at least 65% of its mass – is galacturonic acid, a natural sugar acid.

In the plant cell wall, most of the galacturonic acid units are esterified and present as a methyl ester. They are linked together to form long molecular chains known as the homogalacturonic backbone.

Pectin also contains a range of other molecules – neutral sugar molecules such as rhamnose, galactose, arabinose and lesser amounts of some other sugars.

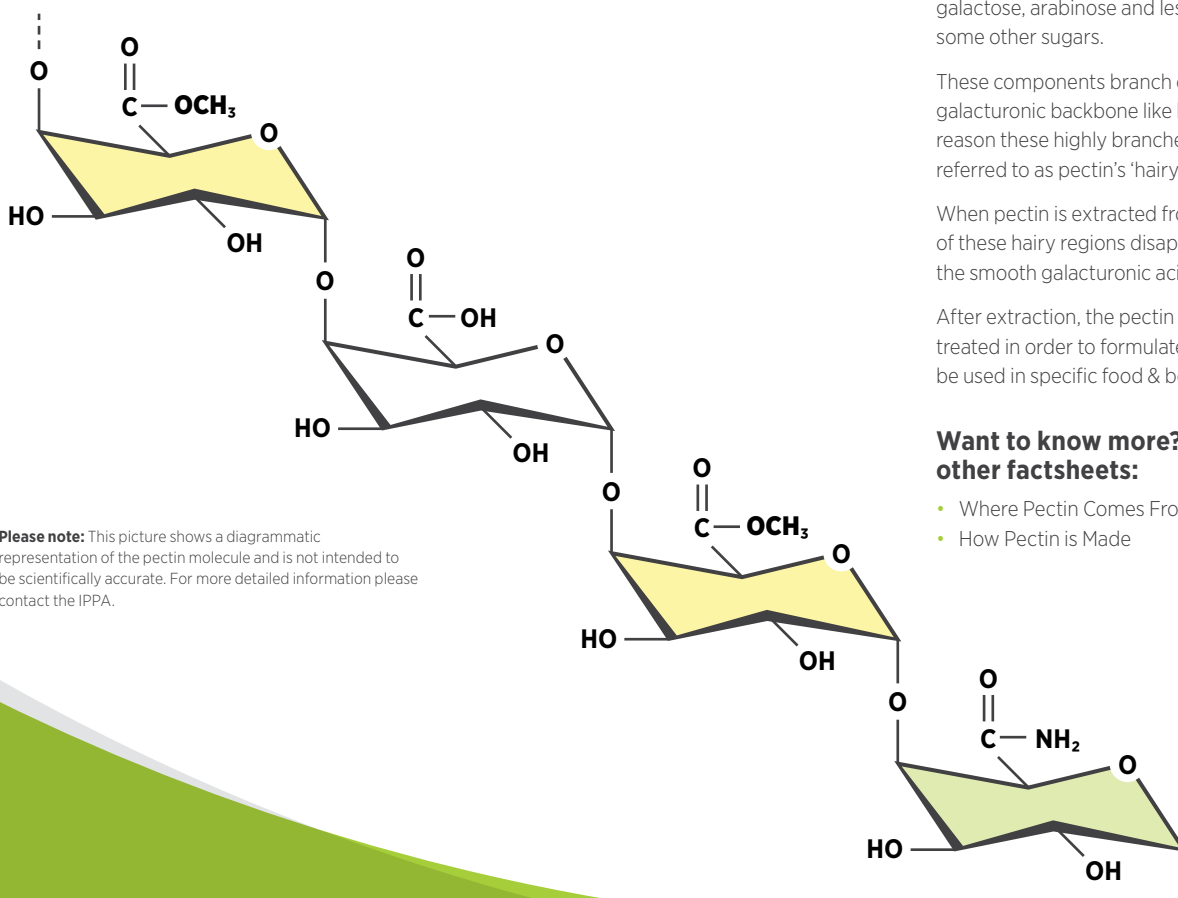
These components branch off the homogalacturonic backbone like hairs, and for this reason these highly branched structures are referred to as pectin's 'hairy regions'.

When pectin is extracted from the plant, most of these hairy regions disappear, leaving mainly the smooth galacturonic acid regions.

After extraction, the pectin may be further treated in order to formulate different types to be used in specific food & beverage products.

Want to know more? Read our other factsheets:

- Where Pectin Comes From
- How Pectin is Made



Please note: This picture shows a diagrammatic representation of the pectin molecule and is not intended to be scientifically accurate. For more detailed information please contact the IPPA.