



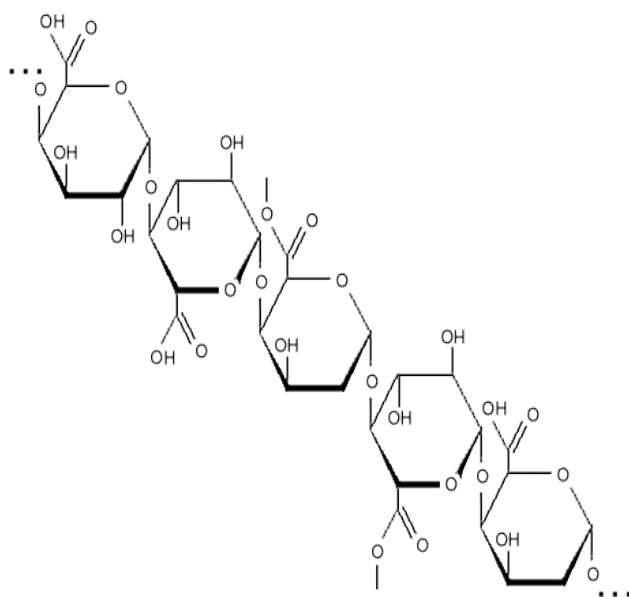
Isolation of pectin from grape fruits

Lab No. 3

What is pectin?

Pectin is a naturally occurring thickening agent that is most often used by adding it to jams, jellies and similar products to help them gel and thicken. It is a carbohydrate (a polysaccharide) found in and around the cell walls of plants. It is prepared from citrus peels and the remains of apples after they are squeezed for juice.

In the plant, pectin is the material that joins the plant cells together. When fungus enzymes break down the pectin in fruit, the fruit gets soft and mushy.

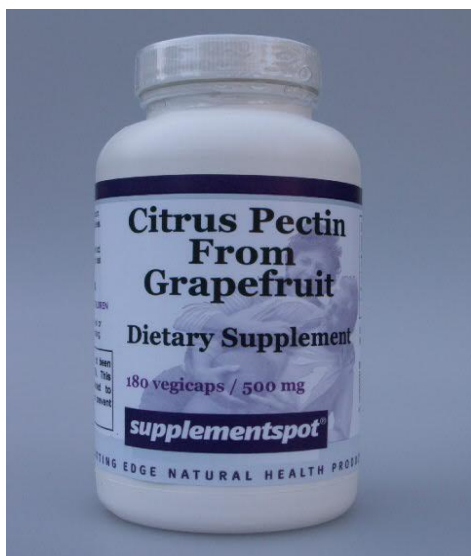


Sources of pectin:

Apple, grape fruit, orange, banana, cabbage, carrots and apricot. Generally, 60 – 70 % of the dietary fiber in citrus fruits is pectin.

Uses:

- Pectin is a thickener in many products. If there is sufficient sugar in the mixture, pectin forms a firm gel.
- Jams and jellies are thickened with pectin.
- Pectin binds water, and thus keeps products from drying out.
- Pectin stabilizes emulsions and combines with the calcium and whey proteins of milk, stabilizing foams and gels made with cream or milk.
- Pectin is not digested, and is considered a beneficial dietary fiber.



Principle of extraction:

Pectin in fruit are found insoluble form known as protopectin, convert to the soluble form by heating the fruit by dilute acid. Pectin is then ppt. by ethanol.

Procedure:

- 1- Carefully peel the yellow layer from a rind of a citrus fruit and discard.
- 2- Remove the white inner rind and cut into small pieces.
- 3- Transfer the material to a beaker after collecting in cotton gauze.
- 4- Cover with water and boil for 1 hour, maintaining the volume of liquid by frequent addition of water.
- 5- Filter, cool the filtrate and add twice its volume of ethanol.
- 6-Filter the precipitated pectin and leave it to dry at room temperature.