PECTIN EXRACTION

PECTIN

Pectin, consists from pectic acid molecules. Pectic acid is a long chain of galacturonic acid that binds with the α-1,4 bonds.

Depending of the number of molecules in this chain various pectic acids can be present.

Pectin can be obtained from many plants.

Malus communis
(Rosaceae)

Citrus **species**
(Rutaceae)

Beta vulgaris
(Chenopodiaceae)

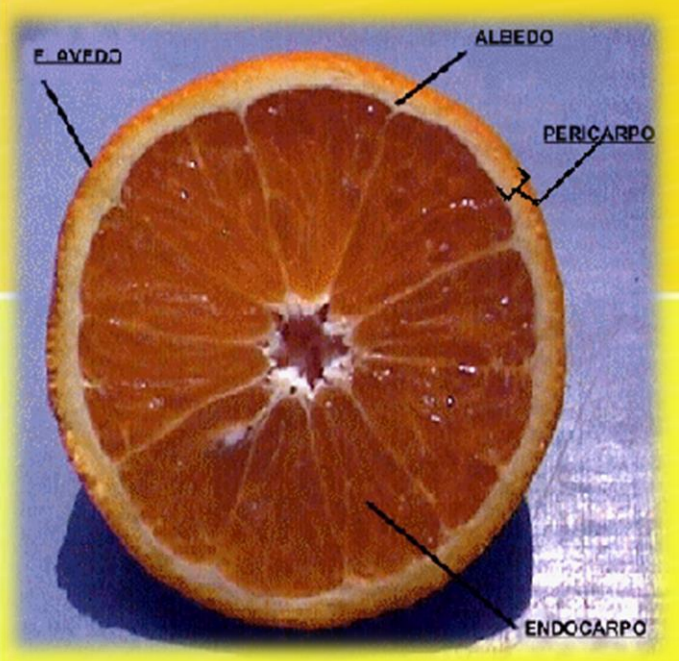
Daucus carota
(Umbelliferae)

The yellow, orange or reddish part of the fruit pericarp is called **FLAVEDO.**

→ It contains flavonoids.

The spongy, white part of pericarp is called **ALBEDO.**

→ It contains pectin.



EXPERIMENTAL PROCEDURE

Pectin extraction is practiced in 3 steps:

1- Extraction of pectin from the material

2- Precipitation of pectin in filtrate with alcohol

3- Separation and cleaning of pectin

Experimental Procedure

Peel and albedo of the material are seperated.

↓

Albedo is cut into small pieces. (For a complete extraction).

↓

Albedo is weighed.

↓

Albedo is put in a beaker and add WATER and 3N H_2SO_4.

↓

Mixture is heated on a burning flame and stirred with a glass rod.

(Pectin is hydrolyzed by heating with acid. Pectic acid occurs and protopectin dissolves easier.)

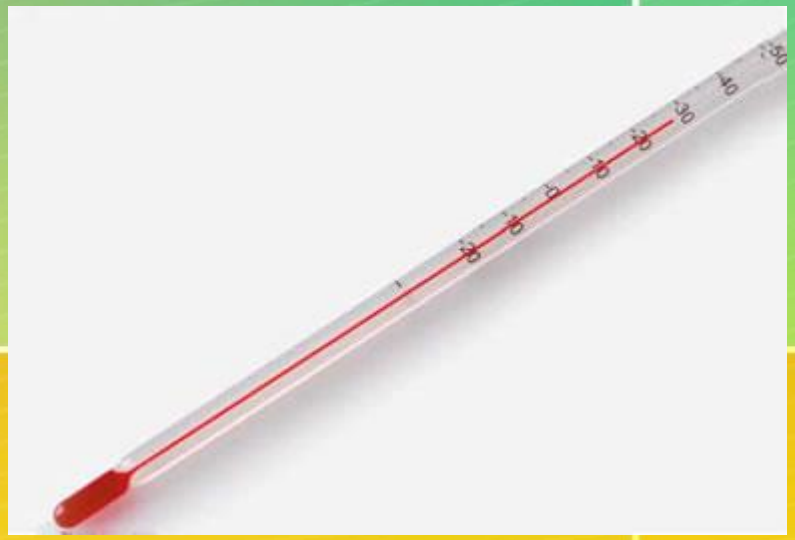
The temperature of mixture is brought to 85-90 ºC by measuring with thermometer, then kept at this temperature for 30 minutes.

At the end of the 30 minutes, aqueous phase is filtered through the cotton filter cloth to a conical flask.

(Cloth is squeezed by using baguette)

WATER and 3N H_2SO_4 are added onto remaining peels in the beaker and heated again during 15 minutes then filtered.

THERMOMETER

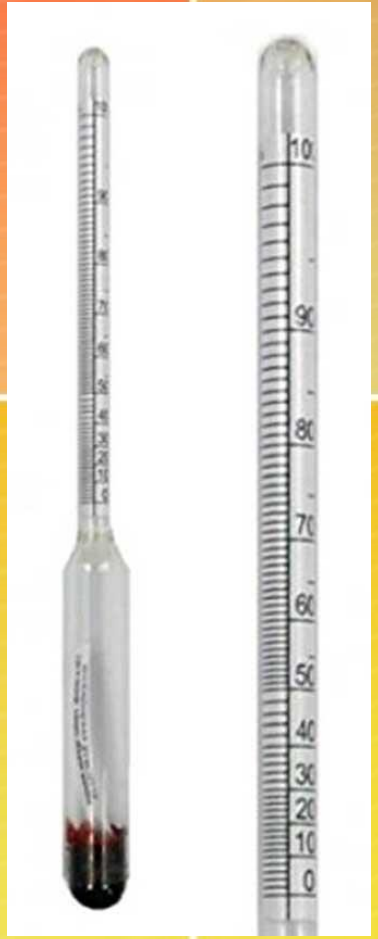


COTTON FİLTER CLOTH

The filtrates are combined.
If there is any blurring in the filtrate, filtration is repeated.

Filtrate is placed in a graduated cylinder. 96º ethanol is added till the alcohol grade becomes 55º.
(Alcohol grade is measured by using alcoholometer.)

When the alcohol grade is 55º , pectic acid precipitates.
(There is pectic acid in filtrate and it does not dissolve in alcohol. When the alcohol grade is 55º, pectic acid precipitates.)



ALCOHOLMETER

The precipitated pectin is removed by filtration. (Plain filter paper is used.)

The precipitate is washed with first 96º alcohol then acetone.

The purified pectin is left to dry.
(Until the next day)

It’s weighed after drying and then

yield % is calculated.