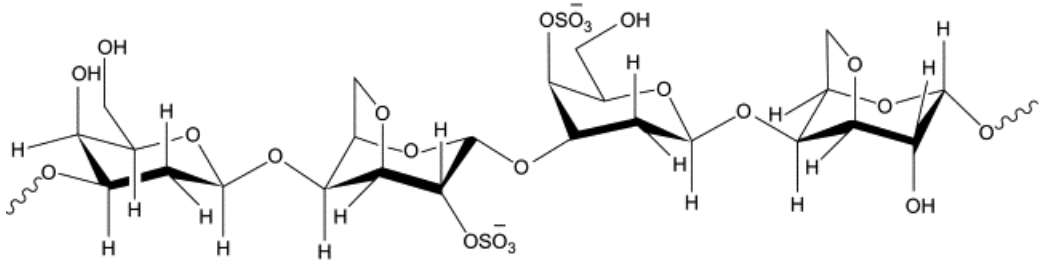
CARRAGEENAN

- **Carrageenan is obtained from various red algae or sea weeds.**
- ***Chondrus crispus* (Gigartinaceae)**
- ***Gigartina mamillosa* (Gigartinaceae) are major sources of Carrageenan.**
- **These algae are commonly known as chondrus or Irish moss.**
- **Decoction of carrageenan (5%) forms gel.**
- **0.3 % solution+tannic acid solution.----not precipitate (difference from gelatin)**

CARRAGEENAN

- The carrageenan hydrocolloids are galactanes with sulphate esters and physically resemble agar.
- The carrageenans differ chemically from agar because they have a higher sulphate ester content.
- Carrageenan polysaccharides consist of chains of 1,3-linked β-D-galactose and 1.4-linked α-D-galactose units.



CARRAGEENAN

- Carrageenans are widely used to form gels and to give stability to emulsions and suspensions.
- They are also used as a demulcent, a bulk laxative, and an ingredient in many food preparations.

SEMEN CYDONIAE, Quince Seeds

- ***Dried seeds of Cydonia vulgaris* (Rosaceae)**
- The seeds ***of*** ***Cydonia vulgaris***
- **have mucilage (20%)**
- They are also used as a demulcent

And laxative in children

- Also the leaves of the plant used

against cough.

FOLIA FARFARAE, COLT'S FOOT

- The leaves of *Tussilago farfara* (Compositae) leaves
- Europe and Turkey
- Potentially unsafe plant
- veno-occlusive hepatotoxicity (pyrrolizidine alkaloids)

FOLIA FARFARAE, COLT'S FOOT

- Mucilage (8%)
- Minerals, esp. KNO_3 (15-20%)
- Expectorant
- Cough remedy (homeopathy)

SEMEN FOENUGRAECİ, FENUGREEK

- ***Trigonella foenum graecum*** **L. (Leguminosae)**
- **NATURALLY GROWS AND CULTIVATED in Anatolia**
- **Galactomannans**
- **(30-50%)**
- **Saponins (1% Diosgenol)**
- **Alkaloids(choline/ trigonelline)**

SEMEN FOENUGRAECİ, FENUGREEK

- Hypocholesterolemic activity
- Hypoglycemic effect
- Stimulant action on uterus and CNS
- Laxative
- Spice
- Fenugreek has traditionally been used to treat anorexia, constipation, dyspepsia, gastritis, and other releated GI conditions.

TUBERA SALEP, SALEP

- Orchidaceae family;
- *Orchis*--------Muğla-Milas ---South-West Anatolia
- *Ophrys*
- *Serapias*
- *Anacamptis*
- *Planthera*

TUBERA SALEP, SALEP

- Salep is also obtained in Iran
- In Anatolia (Kastamonu, Muğla, Antalya, Silifke, K.Maraş, Malatya, Muş, Bitlis, Van) as a wild plant
- *Orchis anatolica* and *O.italica*---Muğla
- *Orchis mascula* and *O.purpurea*---Kastamonu

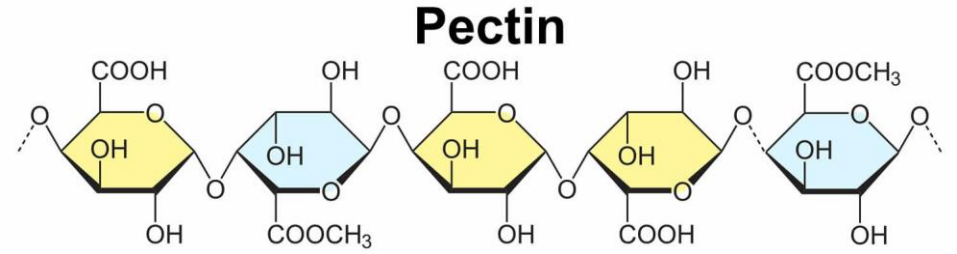
TUBERA SALEP, SALEP

- **Mucilage (40-50%) (in *O.anatolica* 57% of Mucilage)**
- **GLUCOMANNANE----3 mannose +1 glucose linked 1-4**

- **USAGE:**
- **Traditional beverage**
- **Expectorant**
- **Adulteration is possible with the starch**

Pectin

- Pectin is a general term for a group of polysaccharides present in the primary cell walls of all seed-bearing plants and located particularly in the middle lamella.
- These polysaccharides function in combination with cellulose and hemicellulose as an intercellular cementing material.



Pectin

- In plants, pectins are the substances that stick the plant cell walls together.
- Pectin is often associated with

Ca and Mg ions.

- The parent substance protopectin

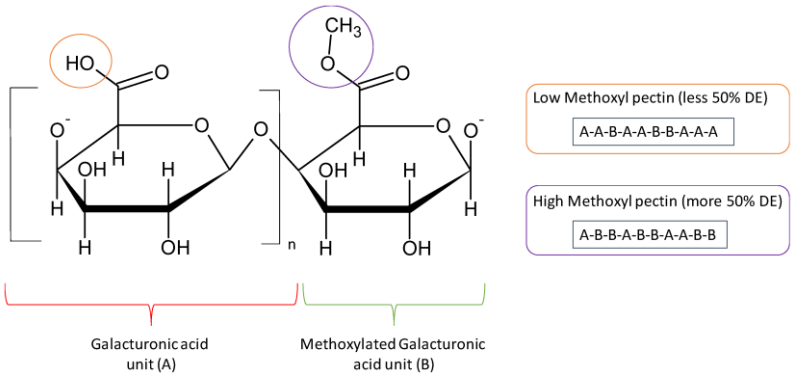
is insoluble but easily converted

to pectin by restricted hydrolysis

using dilute acid extraction of the inner portion of the rind of citrus fruits or from apple pomace.

Pectin

- Pectin is consisting chiefly of partially methoxylated polygalacturonic acids; the main carbohydrate component is a linear, 1-4-linked D-galacturonic acid.
- Many of the carboxyl groups galacturonic acid are esterified with methanol.
- The molecular weight of pectin ranges from 100.000 to 250.000.



Pectin

- Pectins are water soluble and make viscous solutions or gels, similar in composition to the gums.
- Protopectin is insoluble in water.
- Pectins also form gels under certain conditions
- There are 2 enzymes «pectinases» that degrade pectins.

1. Pectase (esterase)..hydrolysis the methyl ester

2. Pectinase (hydrolase)..hydrolysis the glycosidic bonds (1-4) of galacturonic acids

Pectin

- Most commercial pectins come from «apple pomace» or waste from manufacture of apple products (10-15% pectins), citrus wastes (20-30 %) pectins and from sugar beet processing (*Beta vulgaris*).
- Other sources of pectins are *Daucus carota* (carrot) and *Gentiana* ssp.

Pectin

- Pectin yields not less than 74% galacturonic acid. The gelling power and viscosity of solutions depend on the number of galacturonic acid units in the molecule.
- OCH_3 amount should be 6.7%
- Pharmaceutical pectin differs from commercial pectin, because it does not contain sugars of organic acids. Pharmaceutical pectin should be pure pectin to which no additions have been made.

Pectin

- Pectin in fruit is found in an insoluble form known as protopectine; it is converted to the soluble form by heating the fruit with dilute acid.
- This solution of pectin can be precipitated by alcohol or by salting out. It is then washed and dried.
- Pectin is a coarse or fine powder, yellowish white in color.

Pectin

- Pectin is classified as a protectant and a suspending agent and is an ingredient in many antidiarrheal formulations .
- As a colloidal solution, it has the property of conjugating toxins and enhancing the physiological functions of the digestive tract is largely owing to this colloidal action.
- Pectin is also hemostatic agent.

Pectin

- The serum concentration of some drugs (penicilline, insuline) prolonged with pectin.
- Pectin decreases the ascorbic acid elimination.
- Pectin is also used in food industry as emulsion and stabilization agent.
- Pectin is used in textile and dye industries