Pharmacognosy LAB2

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MSc in pharmacy science

Microscopical identification for starch + calcium oxalate

- Microscopical examination of drugs:

The following aims should be kept in mind for the microscopical examination of crude drugs:

1- The determination of the size, shape and relative positions of the different cell and tissues.

2- The determination of chemical nature of the cell walls.

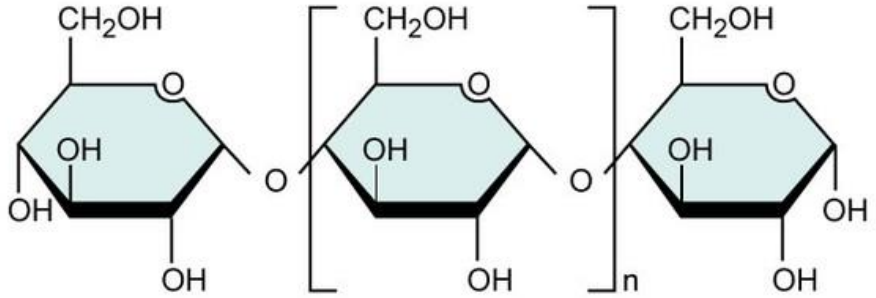
3- The determination of the form and chemical nature of cell content.

- Disintegration serves for the isolation of the specific tissues
- Bleaching and defatting techniques for observing deeply colored materials and fatty seeds respectively.
- Clearing reagents will be required together with the range of suitable stains for cell wall and cell contents

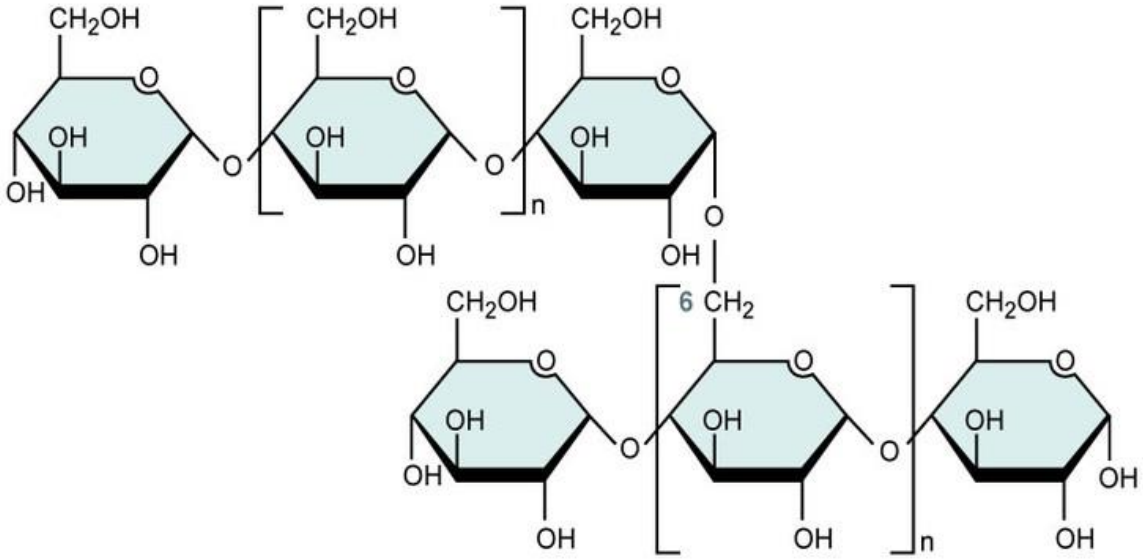
Starch

Is natural, cheap, available, renewable and biodegradable polymer produce by many plants as a source of stored energy. chemically, starch are polysaccharides, composed of number of monosaccharides or sugar (glucose) molecules linked together with α- D- (1_4) and /or α-D (1-6) linkages.

Amylose



Amylopectin

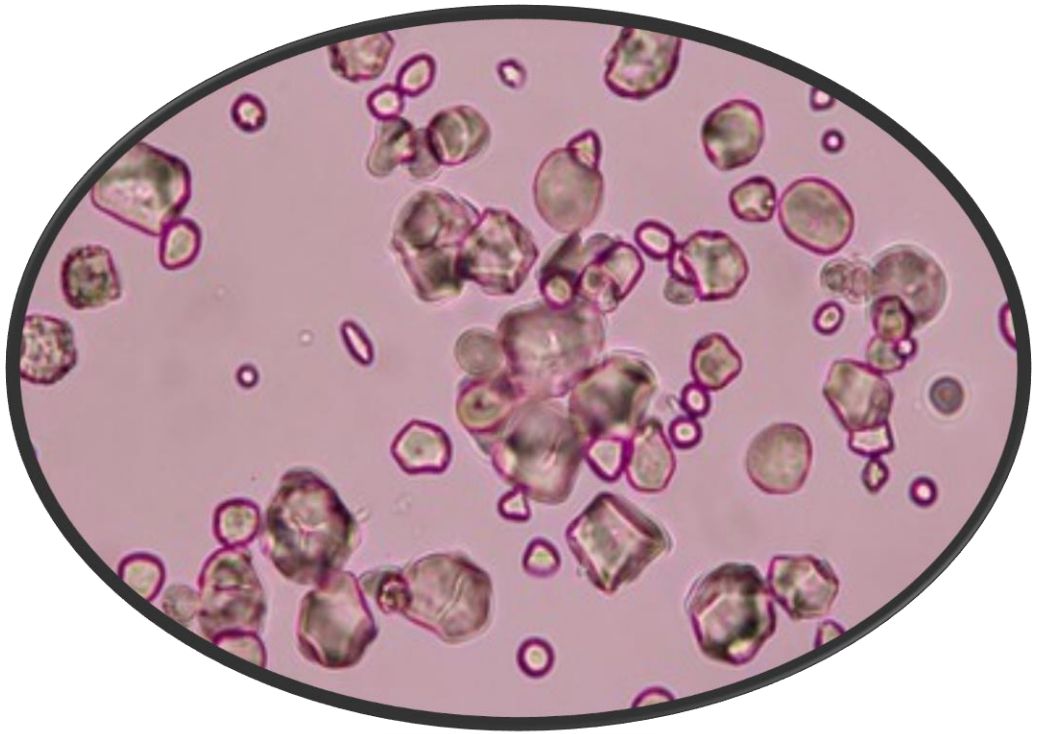


Use of starch in pharmaceutical industry:

- Diluent
- Antidote in treatment of iodine poisoning.
- Lubricant
- Tablet disintegrant.
- Binder
- Dusting powder (in which adsorbent properties are important).

Procedure:

- Prepare starch solution: 2gm of starch in 200ml D.W -OR- we can prepare starch from natural source such as rice , potato by boiling 2gm of plant in 200ml D.W
- **Detection of starch by iodine test:** 1ml of starch solution then add 1ml of iodine test (positive result gives bluish black color).
- **Examination of starch under microscope:** Take 1 drop from this solution (starch + D.W solution) put it on slide then cover it with cover slide, also we can use starch with iodine test then exam under microscope



starch under microscope

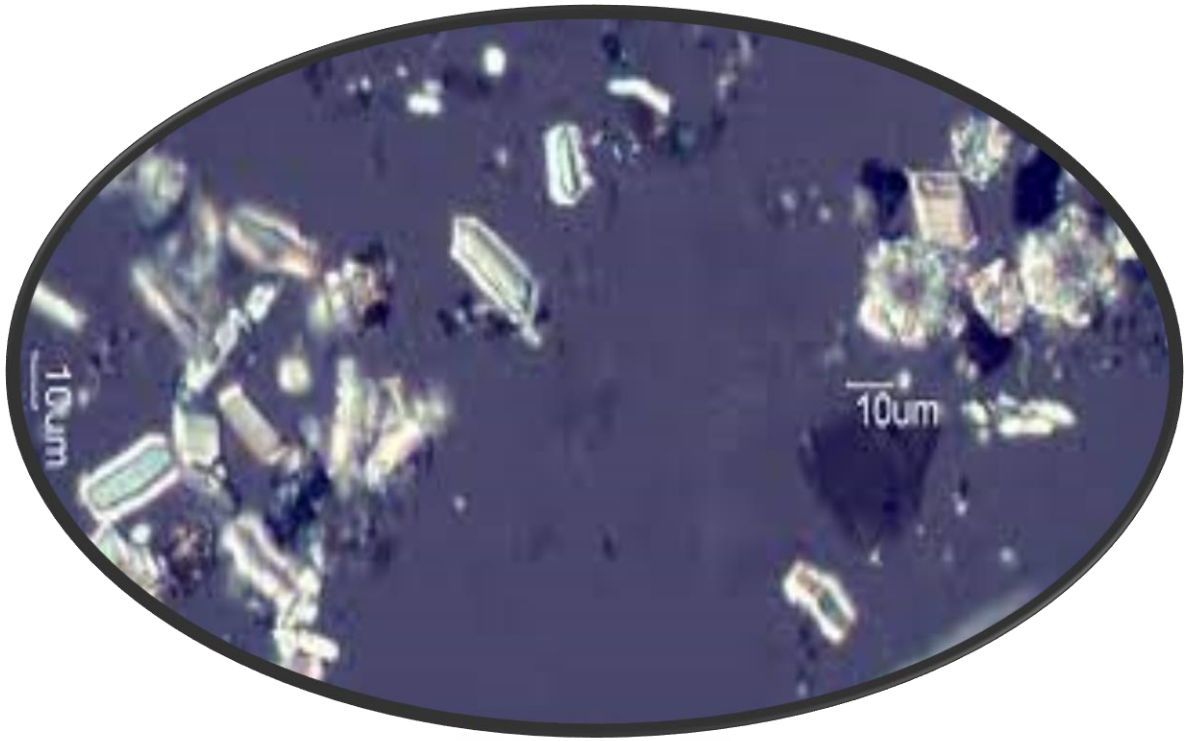
Calcium Oxalate

- Calcium oxalate are found in plants as a result of interaction of oxalic acid with calcium salt
- Different types of calcium oxalate crystals with various shapes can be used as a diagnostic element for plant identification.
- Calcium oxalate can crystalize into three forms: Monohydrate, Dihydrate, Trihydrate.
- only the monohydrate form is thermo dynamically stable. Thus, in renal stones, only monohydrate and dihydrate forms were found.

Procedure:

- To exam Ca – oxalate under microscope

1 gram of cinnamon in 50 ml of D.W heat to boiling then take one drop from this extract put it on the slide and cover it by cover slide and exam it under microscope (10x and 40 x).



Ca-oxalate under microscope