Chemical and physical properties of flour and their research methods

Prepared:
student of faculty commodity research and commercial activities 1 courses of 4
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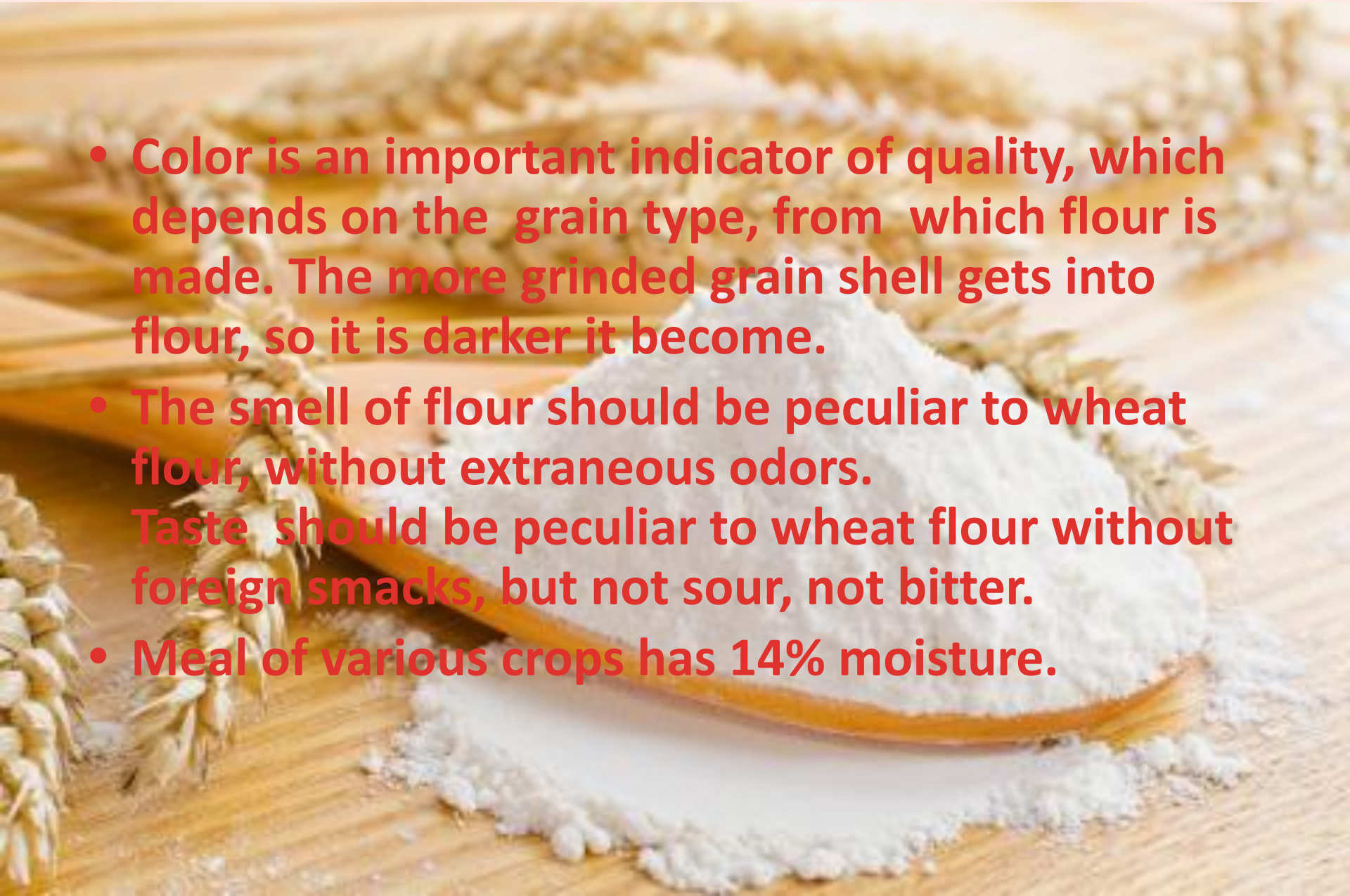
Briefly on flour:

Flour is a product which is obtained by grinding the powder grain cereals or legumes seeds

Using

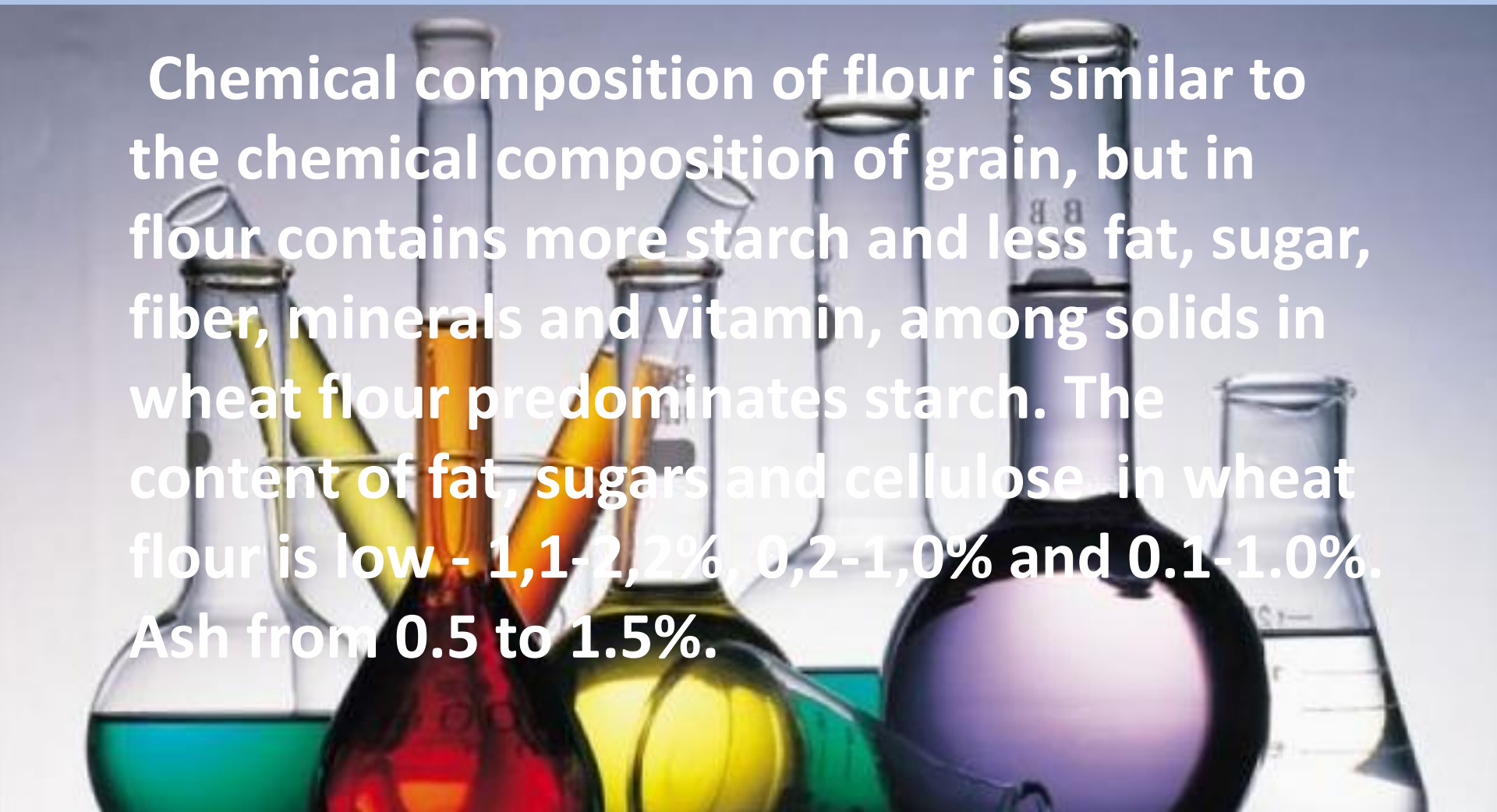
The main purpose of flour is baking bread, baking pancakes, pies, while making dumplings, bakery, confectionery products (cakes, muffins, cookies), pasta, and more.

Physical properties.



- Color is an important indicator of quality, which depends on the grain type, from which flour is made. The more grinded grain shell gets into flour, so it is darker it become.
- The smell of flour should be peculiar to wheat flour, without extraneous odors.
  Taste should be peculiar to wheat flour without foreign smacks, but not sour, not bitter.
- Meal of various crops has 14% moisture.

Chemical properties



Chemical composition of flour is similar to the chemical composition of grain, but in flour contains more starch and less fat, sugar, fiber, minerals and vitamin, among solids in wheat flour predominates starch. The content of fat, sugars and cellulose in wheat flour is low - 1,1-2,2%, 0,2-1,0% and 0.1-1.0%. Ash from 0.5 to 1.5%.

Purpose:

Evaluate the quality of the flour sample physical and chemical methods of research.

Materials Required

- Different types of flour
- fluorymet
- pH-meter
- distilled water
- conical flask
- 3% phenolphthalein - solution
- sodium hydroxide solution concentration of 0.1 mol / dm3.
- Scales laboratory purpose
- Burettes
- Droppers
- Pipette

1. Wheat flour “Наша марка" Kharkiv
2. Wheat flour “Добрий господар" Bila Tserkva
3. Buckwheat flour "Подільський край“ Vinnitsa

4. Corn flour “Сто пудов" Kharkiv
5. Potato flour "Крохмаль“ Veprin
6. potato flour “Добрий господар" Bila Tserkva

Experiment 1: luminescent analysis of flour

Fluorescent analysis helps to identify qualitative and quantitative flour composition

Results:

Wheat flour (samples 1 and 2) – sky-blue

Buckwheat flour (Sample 3) – blue

Corn flour (sample 4) - brown

Potato flour (samples 5 and 6) - gray-brown

Experiment 2: Determination of impurities chalk, gypsum and lime impurities in flour

Check the pH using pH-meter

Sample:

1. pH=5,72
2. pH=5,84
3. pH=6,12
4. pH=6,17
5. pH=6,76
6. pH=6,22

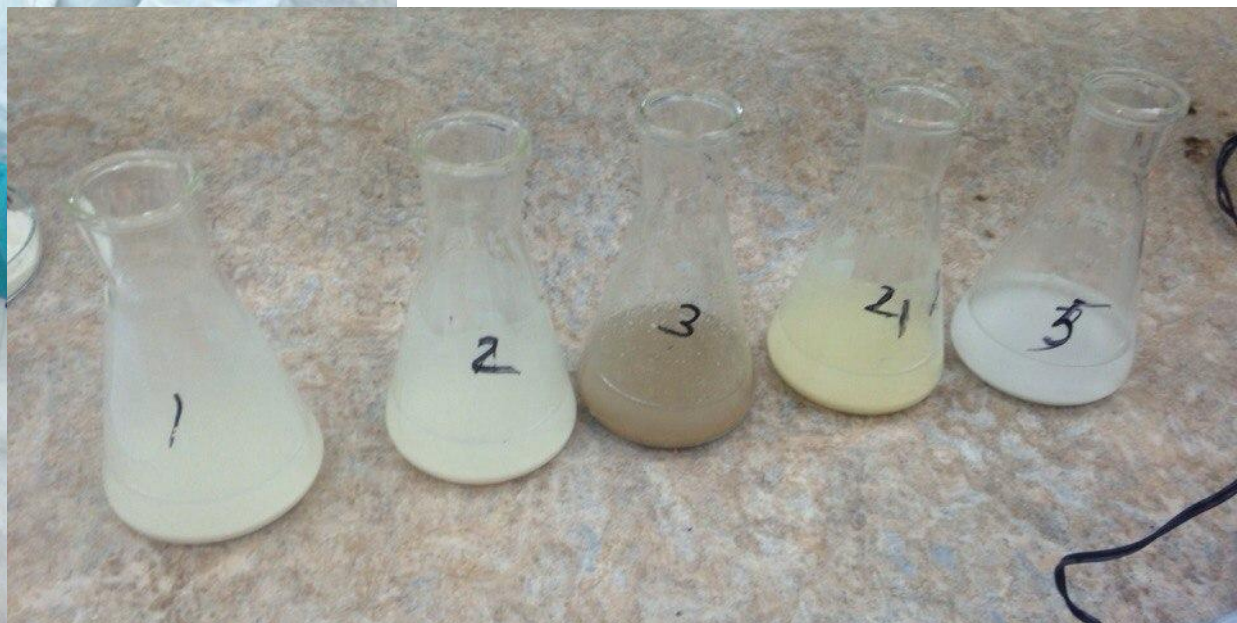
Experiment 3: Method of determining the acidity of flour

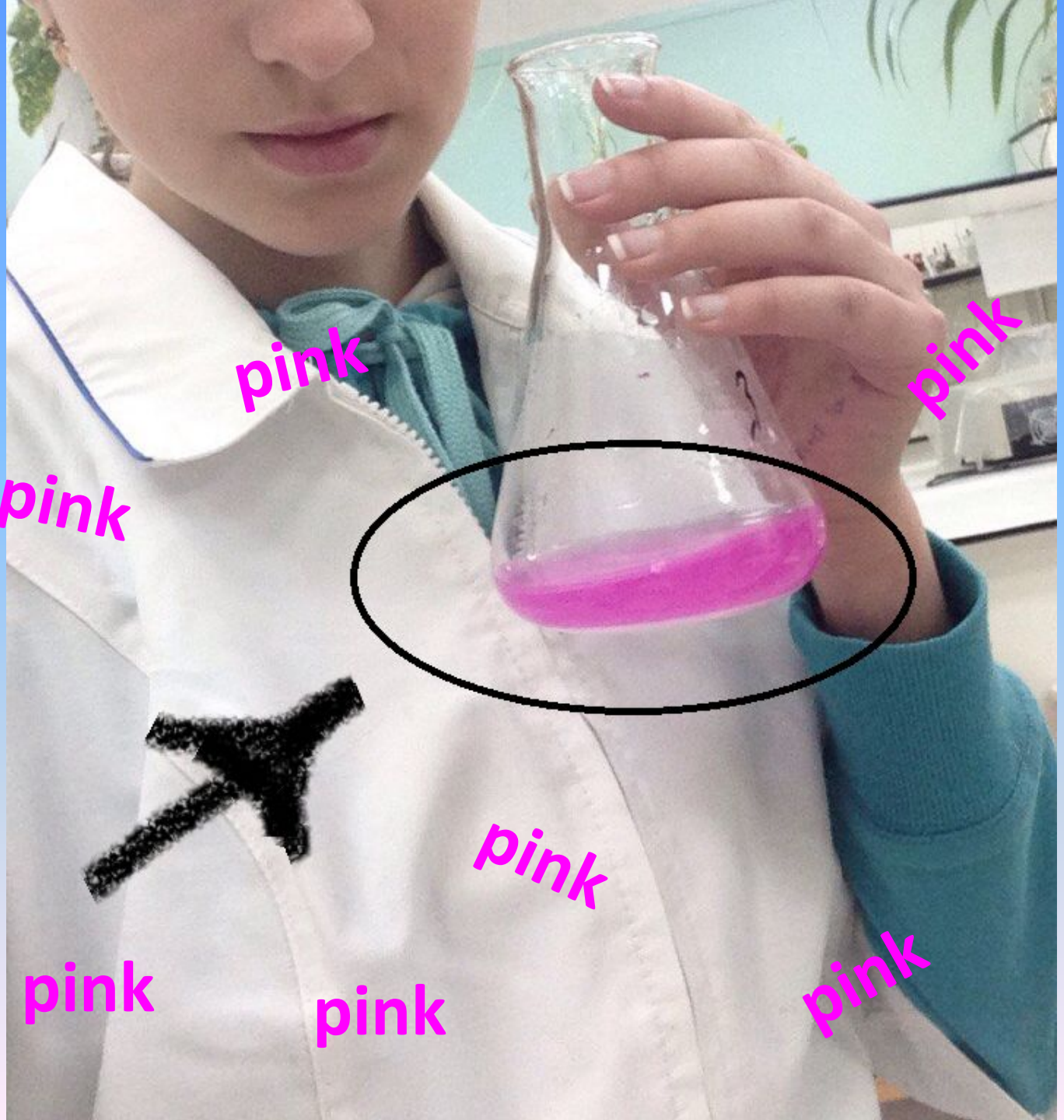
The main purpose of this method is titration of all acids reactants in flour by sodium hydroxide

5 grams of flour

+

50 cm3 distilled water

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RESULTS

Acidity :

1. 5,2°
2. 4,2°
3. 7,6°
4. 9,6°
5. 0,8°
6. 1°

Conclusions:

- Acidity of potato and corn flour meet the standards
- Acidity of buckwheat flour is too high and does not meet the standards.
- Acidity of wheat flour does not meet the standards of both top and second grade.

Thank for your attention