

**Class 2.**

**Analysis of medicinal plant material containing alkaloids (I).**

**Aims:** 1. Learn to recognise medicinal plants containing acyclic and nitrogenous alkaloids in their side chains by their external features and to distinguish them from impurities.  
2. To be able to determine the authenticity and the quality of the raw materials of this group.

**Questions:**

1. Dynamics of alkaloid formation in plants.
2. Significance of alkaloids in plants.
3. Characteristics of acyclic and nitrogen side chain alkaloids.
4. Medicinal plants and raw materials containing acyclic alkaloids and alkaloids with nitrogen in the side chain:
  - *Capsicum annuum*;
  - *Ephedra equisetina*.

**Laboratory work:**

**CARE MUST BE TAKEN WHEN HANDLING ALKALOID-BEARING RAW MATERIALS!!!**

**All raw materials are poisonous. Do not taste!**

**Work 1. Study of the morphological and anatomical characteristics of the raw material of *Capsicum annuum* L.**

**Chilli (Red) pepper fruits – *Capsici annui fructus***

**Producing plant:** Chilli (Red) pepper – *Capsicum annuum* L.

**Family** *Solanaceae*

**BE CAREFUL WHEN WORKING!**

**Pepper dust causes severe mucous membrane irritation!**

study the appearance of the medicinal plant using herbarium and tables.

Describe the raw material in a diagram. Draw the appearance and a longitudinal section of the fruit. Draw a conclusion about the authenticity.

Using the relevant ND, study the main anatomical signs of the chilli pepper, which are of diagnostic value in determining the authenticity of the raw material. Draw them in a workbook.

Study the chemical composition of the raw material. Write down the formula of the main alkaloid.

Pay attention to the numerical indicators that characterize the benignity of the chilli pepper.

Specify the pharmacological group and use of the raw material.

**Work 2: Study of macroscopic features of raw material of *Ephedra equisetina* Bunge.**

**Ephedra horsetail herb – Ephedrae equisetinae herba**

**Producing plant:** Ephedra horsetail – *Ephedra equisetina* Bunge

**Family** *Ephedraceae*

**BE CAREFUL WHEN WORKING!**

Study the appearance of the medicinal plant, using herbarium and tables. Pay attention to the peculiarities of harvesting medicinal herbs.

Describe the external features of the raw material according to the scheme. Make a conclusion about its authenticity.

Specify the chemical composition of the raw material. Write down the formula of the main alkaloid.

Examine the numerical indicators that characterize the quality of medicinal plant raw materials.

Specify the pharmacological group and use of the raw material.

**Self-assessment questions:**

1. State the precautions to be observed when handling raw chilli.
2. Identify the habitat and cultivation sites of chilli pepper and ephedra horsetail.
- 3 What accounts for the pungent taste of the fruits of chillies?
4. How are the raw materials of ephedra horsetail stored?