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THE STUDY OF THE DIAGNOSTIC ANATOMICAL SIGNS OF THE RAW MATERIAL OF AGRIMONIA EUPATORIA L.

Resume: *The study of the diagnostic anatomical signs of the dried leaf and flower of A. eupatoria has been conducted. As a result, a cross section and an examination under a microscope allowed to identify the following elements: simple hairs on the peduncle of the flower, rhombic crystals in the leaf, gandular and branched, curly and forked hairs, multicellular glands, druses in the mesophyll of the leaf, mulifaceted cells with beads-like walls of the lower epidermis of the leaf, anomocytic stomata of the lower surface of the leaf, spiral vessels and crystals lining on the vein of the leaf.*
Key words: *microscopy, diagnostic anatomical signs, A. eupatoria*

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ИЗУЧЕНИЕ АНАТОМО-ДИАГНОСТИЧЕСКИХ ПРИЗНАКОВ СЫРЬЯ AGRIMONIA EPATORIA L.

Резюме. В результате изучения диагностических признаков анатомического строения сырья (листа и цветка) A. eupatoria микроскопическим анализом установлено наличие следующих элементов: простые волоски на цветоложе цветка, ромбические кристаллы в мезофиле листа, железистые и разветвленные, курчавые и вильчатые волоски, многоклеточные железки, друзы в мезофилле листа, многогранные клетки эпидермиса с чёткovидными стенками нижней поверхности листа, аномоцитный тип устьиц нижней поверхности листа, спиральные сосуды и кристалоносная обкладка жилки листа.
Ключевые слова: микроскопия, анатомо- диагностические признаки, A. eupatoria

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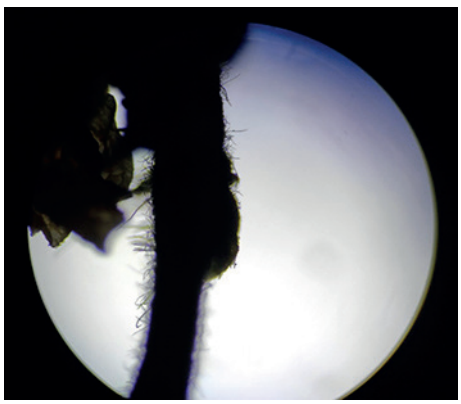
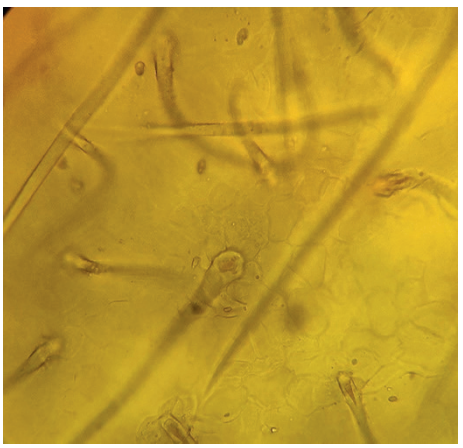
AGRIMONIA EUPATORIA L ШИКІЗАТЫНЫҢ АНАТОМИЯЛЫҚ-ДИАГНОСТИКАЛЫҚ БЕЛГІЛЕРІН ЗЕРТТЕУ

Түйін. A. eupatoria шикізатының (жапырағы мен гүлінің) анатомиялық құрылымының диагностикалық белгілерін зерттеу нәтижесінде микроскопиялық талдау келесі элементтердің болуын анықтады: гүлдің ойығындағы қарапайым шаштар, жапырақ мезофиліндегі ромбтық кристалдар, безді және тармақталған, бұйра және шанышқы шаштар, көп жасушалы бездер, жапырақ мезофиліндегі друздар, жапырақтың төменгі бетінің айқын қабырғалары бар эпидермистің көп қырлы жасушалары. , жапырақтың төменгі бетінің стоматасының аноциттік түрі, спиральды тамырлар және жапырақ венасының кристалды төсемі.
Түйінді сөздер: микроскопия, анатомиялық-диагностикалық белгілер, A. eupatoria

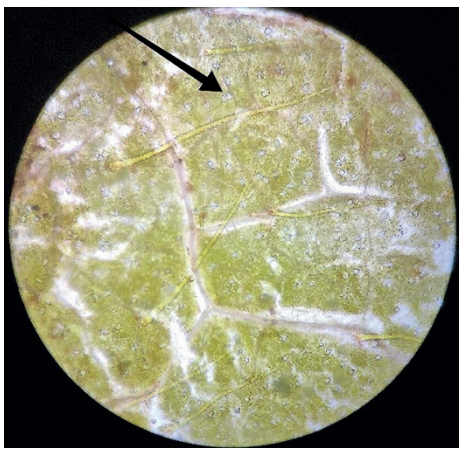
Introduction. In recent years, herbal remedies have been successfully used in the treatment of various diseases, and the demand for herbal raw materials has increased greatly. Increasing demand for plant raw materials puts the search for new alternative sources of plants with different effects and the efficient use of existing ones [4]. This issue is one of the actual problems of pharmaceutical science in the past few years. It is important to study the chemical composition of the plant species, which are widely distributed throughout the Republic and have sufficient raw materials. From this point of view, there is a scientific interest in species that are not pharmacologically studied. Phytochemical studies of A. eupatoria species are being conducted in different countries around the world. A. eupatoria plant of the genus Agrimonia L., which is widely spread in European countries, has been included in the pharmacopoeia of several countries but phytochemical studies have not been fully investigated [5, 6]. Therefore, the natural compounds of various groups are currently being extracted from this plant. Agrimonia L. ge-



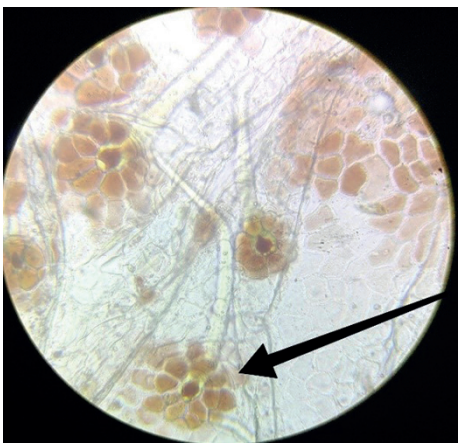
a- Simple hairs on the peduncle of the flower



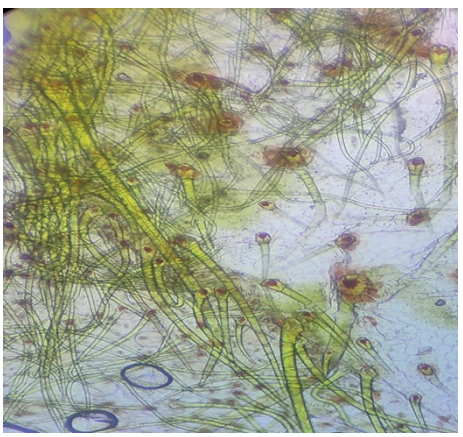
c- Glandular hairs

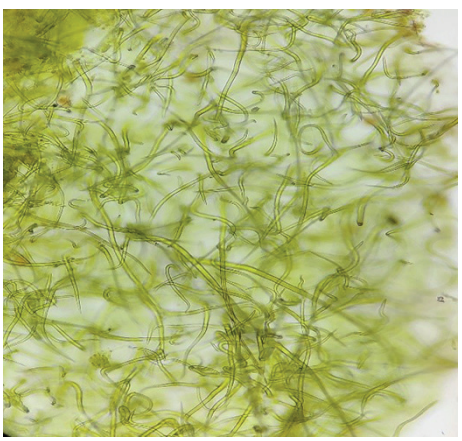


b- Rhombic crystals in leaf mesophyll



d- Multicellular glands

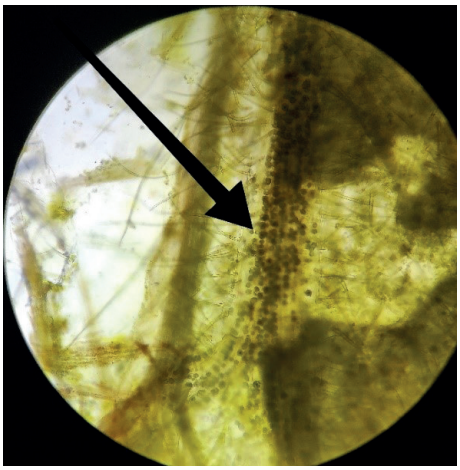




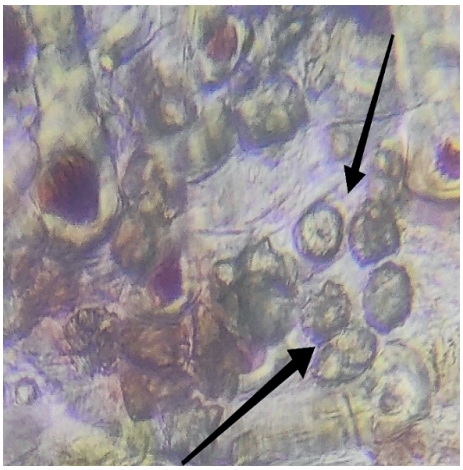
e- Branched, curly, forked hairs

nus includes 15 species of plants in the world. One species (A. eupatoria) is spreading in the Azerbaijan flora [1]. As a result of the initial phytochemical analysis as well as from the literature data, phenolic compounds, tannins, flavonoids, triterpenoid compounds, phytosterols, amino acids, polysaccharides, volatile oils and etc. were mainly found in A. eupatoria plant [2]. Plants belonging to this genus are antioxidant, anti-diabetes, anti- inflammatory, anti-bacterial, anti-cancer, anti-viral, and have an influence on gastrointestinal and cardiovascular diseases, asthma, allergies, menopause and etc [5].

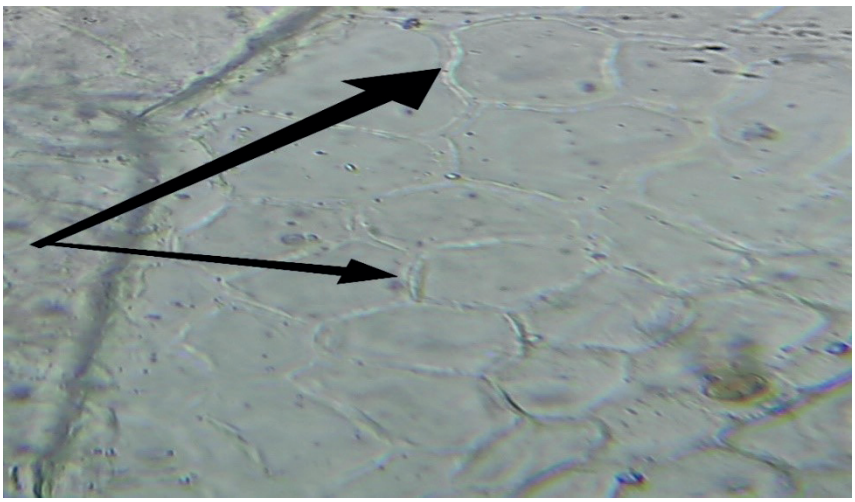
Considering the literature review, this plant has been



f- Crystalline lining on the vein of the leaf

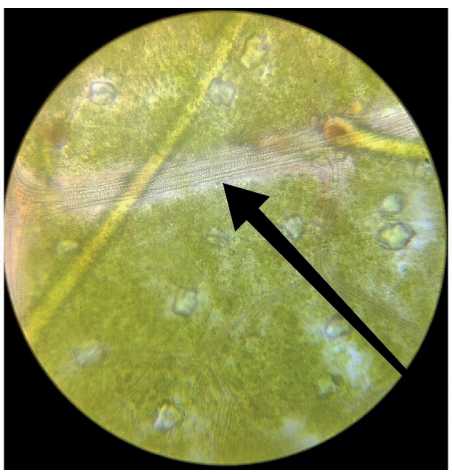


g-Druses in the mesophyll of leaf



h-Multifaceted cells with beads-like walls

i- Anomocytic stomata



j- Spiral vessels

Figure - Results of the microscopic analysis

slightly studied in the pharmacognostic aspect.
Phytochemical and pharmacological studies of the A. eupatoria species in Azerbaijan have not been studied. Therefore, we considered it advisable to do some pharmacognostic studies of A. eupatoria plant.
The aim of our work was to establish of the anatomical diagnostic signs of the raw material of A. eupatoria

Materials and Methods

The object of the study was the dried leaf and flower A. eupatoria collected in the full blossom phase in May-June 2019 in the vicinity of the Yasab village (41°29′33″ şm. e. 48°18′53″ ş. u.) of Gusar district (the Republic of Azerbaijan). The anatomical structure was studied using the well-known method.
During microscopic analysis of the plant raw material, a microslides of the leaf and flower were prepared for study of the anatomical structure under a microscope. The raw material was preserved in the mixture of alcohol – glycerin – water (1:1:1). Then, it was placed in a test tube, to which was added 3 ml of 5% aqueous solution of sodium hydroxide (NaOH). Boiled with using burner bunsen for 2-3 minutes and stirring occasionally. After, the raw material in the test tube was rinsed several times with water. A pieces of raw material were placed on slides, 2-3 drops of distillate water were added, covered by cover glass, the excess of the fluid was removed and after the microslides was observed at different magnification degrees under a microscope. To look the both side, the leaf was cut into two parts by the mean of the razor, one part was carefully turned to the opposite side and placed sideways with the help of the needle.
The microslides were observed under "MOTIC SFC-18 SERIES" microscope. The pictures were taken by "SAMSUNG L74 WIDE" digital camera [3].
The results of microscopic examination of the raw material (leaf and flower) of A. eupatoria are presented below: 1- Simple hairs on the peduncle of the flower (a), 2-Rhombic crystals in the leaf (b), 3-Glandular hairs (c), 4- Multicellular glands (d), 5-Branched, curly, forked hairs (e), 6-Crystalline lining on the vein of the leaf (f), 7- Druses in the mesophyll of leaf (g), 8- Mulifaceted cells with beads-like walls of the lower epidermis of the leaf (h), 9- Anomocytic stomata of the lower surface of the leaf (i), 10-Spiral vessels (j)

Conclusions

As a result of the study of diagnostic signs of the anatomical structure of the raw material (leaf and flower) of A. eupatoria by microscopic analyses showed that following elements: simple hairs on the peduncle of the flower, rhombic crystals in the leaf, gandular and branched, curly and forked hairs, multicellular glands, druses in the mesophyll of leaf, mulifaceted cells with beads-like walls of the lower epidermis of the leaf, anomocytic stomata of the lower surface of the leaf, spiral vessels and crystals lining on the vein of the leaf.

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