It is well known that a number of diseases, labor, surgeries are often accompanied by bleedings. In such cases for their pharmacological correction hemostatic agents are used, particularly ones of plant origin, where nomenclature of drugs is comparatively not large. However, among big variety of medicinal plants there is one unjustly forgotten plant that is Antennaria dioica. This plant is non-official for today and according to the data in literature is applied only in folk medicine. Analysis of data in literature shows that Antennaria dioica contains complex of biologically active substances, which causes different pharmacological effects, that explains possibility of this plant application in great number of pathologies. In the available scientific literature there is no information about study and creation of Antennaria dioica medicines (except galenic ones in folk medicine) that substantiates the importance of further investigation of the properties of this medicinal plant. The prospect direction in this field is application of Antennaria dioica medicines as hemostatics for prevention and stoppage of bleedings of different ethiology.

Key words: plant origin medicines; hemostatic agents; bleedings; Antennaria dioica

INTRODUCTION

It is well known that a number of diseases, labor, surgeries are often accompanied by bleedings. In such cases for their pharmacological correction hemostatic agents are used, particularly ones of plant origin, where nomenclature of drugs is comparatively not large [28-30, 32, 34].

Today clinically as phytohemostatic medicines agents, obtained from following officinal medicinal plants such as Lagochilus inebrians Bge., different kinds of Polygnum, Viburnum opulus L., Capselia bursa pastoris L. Medik., Achillea millefolium L., Urtica dioica L., Arnica montana L., Hypericum perforatum, Sanguisorba officinalis and others, are used [25, 27, 30-33, 35].

Now it is proved, that hemostatic effect of plants develops due to presence in their phytochemical composition calcium salts, vitamin K, tannins, ascorbic acid, rutin, several alkaloids, flavonoids, resins, organic acids.

In this connection above named medicinal plants and drugs obtained from them are indicated in hemorrhoidal, intestinal, uterine (including menstrual), nasal bleedings; treatment of bleeding gums, wounds and ulcers; hemorrhagic diathesis and so on [8-11, 28, 30].

It means, that due to the hemostatic effect these plants are useful in obstetrics and gynecology, surgery and traumatology, gastroenterology, that determines their clinical value and substantiates the prospects of further search and creation of new members in this pharmacological group.
### Table 1

**PHYTOCHEMICAL COMPOSITION AND PHARMACOLOGICAL PROPERTIES OF ANTENNARIA DIOICA**

| Group of BAS | Pharmacological properties |
|--------------|---------------------------|
| **Tannins** | Suppression of inflammation, located in the mouth mucous membrane, intestine; decrease of secretory function of gastrointestinal tract; neutralization of negative effects of heavy metals. Locally: astringent (low doses) effect, cauterizing (big doses) effect on the mucus membranes. |
| **Resins** | Slowdown of putrefaction in the intestine, reparation and disinfection of wounds, antibacterial effect, stimulation of immunity. |
| **Saponins** | Stimulation of bronchial glands secretion, stimulation of cough center, normalization of water-salt metabolism, enhancing of hormonal functions. Diuretic and laxative effect. |
| **Vitamin K** | Increase of blood coagulation (assistance in prothrombin formation), resulting in stoppage of bleedings. Normalization of liver functions, neutralization of harmful effects of toxins, accumulating in the organism; promotion of osteocalcin (protein of bone tissue where calcium crystallizes) synthesis; prevention of osteoporosis development, regulation of reduction/oxidation processes. |
| **Alkaloids** | Inhibition of pain, decrease of blood pressure, normalization of blood circulation, increase of blood coagulation, regulation of CNS functions (stimulative effect in small doses and suppressive effect in high doses). |
| **Octacosan** | Increase of physical resistance, motor reaction time reduction, antistress effect, inhibition of pain in muscles after intensive physical activity, in case of muscular dystrophy and other neuro-muscular diseases; decrease of cholesterol level in blood. |
| **Phytosterol** | Participation in processes of cholesterol and steroid hormones synthesis, formation of cell membranes; prevention of cardiovascular and autoimmune diseases development, neutralization of viruses, strengthening of immunity, detoxication, improvement of mental and physical activity, regulation of water-salt metabolism. |
| **Ascorbic acid** | Decrease of concentration of uric acid in blood, regulation of redox processes in cell respiration, stimulation of immunity, decrease of capillary permeability, assistance in growth and development of bone tissue, in synthesis of hormones of adrenal glands; elimination of cancerogenic toxins. |
| **Volatile oils** | Normalization of cardio-vascular system functions, expectorant and mucolytic effects, improvement of functions of gastrointestinal tract, inhibition of inflammation. |

Besides named official plants, in folk medicine also non-official ones such as *Lysimachia vulgaris*, *Veronica officinalis*, *Erigeron canadensis*, *Hieracium pilosella*, *Trifolium repens* and others are used as blood-stopping agents [23-25].

However, among big variety of medicinal plants there is one unjustly forgotten plant that is *Antennaria dioica*. This plant is non-official for today and according to the data in literature is applied only in folk medicine. Antennária dioíca (L) Gaertn., fam. Asteraceae is a perennial herb, distributed in sub-arctic, medium humid and medium continental climatic zones of Europe, Asia and North America. In Ukraine it grows everywhere.

The folk name of this plant is “cat’s paw”. This name occurred because *Antennaria dioica* has soft to the touch and velvety blossoms shaped like a cat’s paw. One more folk name of *Antennaria dioica* is Helichrysum album [1, 6, 11-14, 18, 19, 35, 36, 38, 39].

Our forefathers were sure that it is possible to treat about “hundred of diseases” using the herb named cat’s paw. Sometimes *Antennaria dioica* was called as “pectoral herb” because it assists in treatment of respiratory diseases, especially colds.

It is known from the data in literature, that herb and flowers of *Antennaria dioica* contain different biologically active substances (BAS) due to which it possesses a great number of therapeutic effects (Tab. 1) [17, 20-23, 28, 30].

Analysing information presented in table 1 it is possible to conclude that due to its composition *Antennaria dioica* causes reparative, hemostatic (it is proved that ability of *Antennaria dioica* BAS to decrease of blood-clotting time and to stop hemorrhages of different origin is stronger than the same effect of adrenaline and calcium chloride), choleretic (it promotes dissolution and elimination of concrements in gallbladder), analgesic (it inhibits pain in case of gout), antitumor, anti-inflammatory, spasmyloytic, vasodilating, diuretic, sedative, antitussive effects.

Taking into account a great number of pharmacological effects of *Antennaria dioica*, drugs obtained from it are used in folk medicine for the treatment of different diseases of organs and systems in human body (Tab. 2) [3-5, 7, 9-11, 17, 24, 26].

For treatment of listed above diseases (Tab. 2) on the base of *Antennaria dioica* different galenic medicines have been already prepared such as infusions, decoctions, dry powder of herb, lotions, cataplasms [5, 15, 17, 21, 22, 25, 33, 35].

According to the data in literature, infusion of *Antennaria dioica* is used as cholesteric agent in cholecystitis, functional disorders of gallbladder and biliary tract (especially, if this disorders are accompanied by hypertensive form of dyskinesia), and also it is used in diseases of stomach (peptic ulcer, gastritis). There are data, that infusion of *Antennaria dioica* herb improves vision and it is used for treatment ophthalmic diseases such as glaucoma and cataract. The efficacy of infusion intake is...
marked at the early stages of these diseases and in long term administration.

As a rinsing, infusion is indicated in diseases of throat and mouth. As a cataplasm infusion is recommended in abscesses, increase of the size of thyroid gland and in hurts. Also infusion obtained from Antennaria dioica is used in gonorrhea as irrigations of the vagina.

Besides infusion, in phytotherapy a powder, prepared by shredding of dry herb, is used. It assists reparation of wounds, burns and hurts. For these purpose powder should be applied to the damaged parts of skin several times a day.

Decoction of the plant is effective for treatment of slowly reparated wounds and furuncles. Moreover decoction of Antennaria dioica as a topical preparation (lotion and washing) is indicated in dermatitis, infantile eczemas, tuberculosis of skin. And it is known, that decoction may be used also internally that improves the efficiency of therapy.

It is necessary to pay attention, that Antennaria dioica (Tab. 1) contains complex of the BAS, which have hemostatic effect (some of them are present also in well-known traditional plants-hemostatics) that allows to suggest the presence of named activity of Antennaria dioica and is proved by data in literature [10, 15, 24, 29, 30].

For example, infusion of Antennaria dioica herb and flowers is used internally for treatment of hemoptysis, plentiful menstruation, bleedings (uterine, nasal, gastro-inestinal, after labor; pulmonary, hemorrhoidal, traumatic ones). In hemorrhoidal and nasal bleedings agents from Antennaria dioica are used both internally and externally (lotions).

It is known, that combination in infusion of Antennaria dioica of anti-inflammatory and hemostatic effects substantiates application of this infusion (as rinsing) in case of inflammation of gums (accompanied by bleedings), stomatitis, parodontosis and other diseases of the mouth.

According to the information in scientific literature [2, 17, 25, 28-30] the possible mechanism of hemostatic effect of preparations of Antennaria dioica, in particular, in case of uterine bleedings, is connected to the stimulation of uterine contractions by alkaloids, volatile oils and tannins in hemostatic effect development.

CONCLUSIONS

Thus, analysis of data in literature shows that Antennaria dioica contains complex of BAS, which causes different pharmacological effects, that explains possibility of this plant application in great number of pathologies.

In the available scientific literature there is no information about study and creation of Antennaria dioica medicines (except galenic ones in folk medicine) that substantiates the importance of further investigation of the properties of this medicinal plant.

The prospect direction in this field is application of Antennaria dioica medicines as hemostatics for prevention and stoppage of bleedings of different ethiology.

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Пошук нових ефективних та безпечних лікарських засобів досі залишається актуальною проблемою. Перспективними об'єктами для застосування можуть бути рослини, що містять комплекс біологічно активних речовин, що впливають на різноманітні фармакологічні ефекти, а також на функції різних органів та систем. Відомо, що рослини містять комплекс біологічно активних речовин, які впливають на функції різних органів та систем. Існує декілька видів рослин, які відомі своїми здатністю захищати організм від різних патологічних станів.

Ключові слова: рослини, біологічно активні речовини, фармакологічні ефекти, захисні здатності.