

Study of the content of the main group of biologically active substances in Burnet medicinal in different phases of plant vegetation

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The study of the contents of the main group of biologically active material in *Sanguisorba officinalis* at different phases of plant vegetation

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SUMMARY

The article presents the results of a comparative study of the dynamics of the accumulation of tannins in the rhizomes with the roots of the medicinal burnet growing in different regions of the Republic of Bashkortostan, and in different phases of the plant's vegetation. At the same time, it was found that the greatest amount of tannins accumulates in the rhizomes with the roots of the burnet, harvested in the fruiting phase and in plants growing in forest glades, meadows with a sufficient degree of moisture and illumination.

Key words: medicinal burnet, rhizomes with roots, tannins, phases of budding, flowering, fruiting.

RESUME

Results of comparative study of tannins accumulation dynamics at different phases of vegetation in *Sanguisorba officinalis* rhizomes and roots growing in various areas of Bashkortostan are presented. We found that maximum of tannins in *Sanguisorba officinalis* rhizomes and root is observed in period of fructification and in plants growing on forest glades and meadows with sufficient humidification and lightning.

Keywords: *Sanguisorba officinalis*, rhizomes and roots, tannins, phase of budding, blooming, fructification.

Burnet medicinal has long been used in practical medicine, mainly as an astringent and hemostatic agent, therefore a more detailed study of the chemical composition of Burnet can expand the possibilities and prospects of its use [4]. Burnet (*Sanguisorba officinalis* L.), family Rosaceae (Rosaceae) is a perennial herb up to 20–150 cm high (in Bashkortostan) with a thick, horizontal, woody rhizome and numerous long roots. In the Southern Urals, the common burnet is one of the most widespread plants, it has a very wide phytocenotic spectrum. It grows in sparse forests, on dry and flooded meadows, among shrubs, along the banks of rivers and lakes, along the edges, on the steppe slopes of hills on various types of soils, mostly on heavy loamy and less often on medium loamy. In some places it forms continuous thickets. Burnet meadows usually prevail in river valleys, where they often dominate, forming burnet-cereal, clover-burnet-cuff meadows [3]. Stems are ribbed, single, branched in the upper part. Unpaired leaves form a basal rosette, moving away from a powerful dark brown rhizome; from above they are dark green, from below - pale green, matte. Leaflets are rounded or oblong, with a serrate edge. Basal leaves are long-petiolate, with 7–25 pairs of leaflets, large. Erect stems are not very leafy, and the number of leaflets in small cirrus leaves decreases upward. Small dark red flowers are collected in ovoid or cylindrical heads; there may be 1–5 such inflorescences on the stem. Blooms in July - August.

The aim of the study was to study the dynamics of accumulation of tannins in

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rhizomes with roots of medicinal burnet, harvested in the Republic of Bashkortostan, in different phases of plant vegetation.

#### Materials and methods

The objects of the study were the rhizomes with roots of the common burnet collected in the Republic of Bashkortostan. The detection of tannins in the raw material of medicinal burnet was carried out using qualitative reactions [2]. The quantitative content of tannins in rhizomes with burnet roots was determined by redox titration in accordance with the requirements of GF-X1 edition [1].

#### Results and its discussion

The rhizomes with the roots of *Burnetis officinalis* were harvested on the territory of the Republic of Belarus in various regions in 2012–2013. The collection of raw materials was carried out in different phases of the vegetation of the plant: the phase of budding, mass flowering and fruiting. Burnet raw material samples were dried and stored in a dry, well-ventilated room. The results of a comparative assessment of the content of tannins in the raw material of medicinal burnet are presented in table. one.

Analyzing the results obtained, it can be noted that the greatest amount of tannins accumulates in the rhizomes with the roots of the burnet, harvested in the phase of the beginning of fruiting. In addition, the strongest influence on the medicinal burnet was revealed in relation to the phytocenotic factor. An analysis carried out on three factors - forest, meadow and steppe meadow showed that forest plants and those growing in conditions of moisture in dry and fresh meadows are distinguished by larger vegetative organs and in such samples there is a higher content of tannins (Nurimanovsky district), and the smallest-leaved forms found on steppe meadows in drier habitat conditions, where the indicators of tannins are lower (Zianchurinsky district).

Table 1

Indicators of the content of tannins in the medicinal burnet

№	Район заготовки кровохлебки	Содержание дубильных веществ в фазу, %		
		бутонизации	цветения	плодоношения
1	Нуримановский район	22,97 ± 0,83	25,36 ± 0,91	31,84 ± 1,05
2	Уфимский район	20,68 ± 0,79	24,17 ± 0,88	28,14 ± 0,98
3	Зианчуринский район	18,95 ± 0,62	22,48 ± 0,76	24,74 ± 0,87
4	Бурзянский район	20,73 ± 0,59	23,71 ± 0,64	26,56 ± 0,89

#### conclusions

1. Studied the dynamics of accumulation of tannins in rhizomes with roots of burnet in different phases of plant vegetation: budding, flowering and fruiting.
2. It was found that the greatest amount of tannins accumulates in rhizomes with burnet roots, harvested in the fruiting phase and in plants growing in forest glades, meadows with a sufficient degree of moisture and light.

#### Literature

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