# THE IMPORTANCE OF HEMOSYSTEMATICS IN SEARCHING OF NEW DRUGS

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**Introduction.** The significance of the data of biochemistry for systematics was first expressed by the German scientist F. Rohleder in 1854. He found out that there was a pattern between systematic position of plants and the presence of chemicals in them. Later it was discovered that related species often contain similar chemicals. Thus, many species of tobacco contain alkaloid nicotine, nightshade species contain solanine, coffee species caffeine, and so on.

**The purpose of the work.** To analyze the latest achievements of leading scientists in the field of hemosystematics of plants. The aim of hemosystematics is to clarify the systematics of certain species or groups of species (taxons); search of the promising for medicine or economics species; identification of correlative links between morphological structure, ecological conditions of existence and chemical composition of plants.

**Materials and methods.** Comparative and descriptive, search, logical.

**Results.** In hemosystematics of plants data on the composition and biosynthesis of major classes of natural compounds (proteins, nucleic acids, carbohydrates, fats, etc.) are used, although products of secondary metabolism (alkaloids, terpenoids, flavonoids, etc) are of strong prognostic value. The composition and content of terpene hydrocarbons is studied most frequently in hemosystematic of ligneous plants, especially conifers. This is because their consistency (resin ducts in wood) does not change with age, environmental factors exert a weak effect on their biosynthesis, synthesis of some components under the control of individual genes. Flavonoids, which are easily distinguished, well preserved in fossils (it was discovered that the flavonoid composition of flowers has been unchanged during 22 million years), and their content is often correlated with certain morphological changes, are important in hemosystematics of flowers. The study of chemical composition of plants can extend the set of knowledge about the contents of various biologically active substances that may be used to manufacture new drugs. Plants of the *Genisteae L.* tribe are used as essential oil, soil-protecting, decorative, industrial cultures, and in traditional medicine. Morphological features of many representatives of this family are not enough for accurate attribution of plants to the same species. That is why the interest in

hemosystematical studies using certain groups of chemical compounds as characteristic features of taxons is clear. Analysis of the data of the literature shows that plants of the *Genisteae* tribe were studied in terms of the content of alkaloids, flavonoids and pirokateholamins concerning hemosystematics. French researchers selecting as hemosystematical signs alkaloid content, concluded that plants *Spartium L.* families and *Genisteae* have the chemical composition and there is no reason to distinguish between them and chemical point of view to allocate to individual families. Harborn D.B divides *Genisteae* group into three by the prevalence of flavonoids: actual *Genisteae*, *Crotalarieae L.* type and *Lupineae L.* type. The first group is characterized by the presence of glikoflavons, fizetin and isoflavones, including 5-metilgenistein are often found. In the second group there are glikosidymyrytsetin, quercetin, kaempferol, but there are no isoflavones. In the third group all studied species contain isoflavones, leykoantotsianidins, often glikoflavons. Unique approach to biochemical systematics of plants was made by the group of Brazilian researchers. Having based on the chemical structure of flavonoids they identified the similarity indexes of the biogenetic groups, indicators of the relative probability of finding and used the developed method as a supplement to conventional morphological classification. The Russian scientists Bandyukova V. A. and Avanesov E. T., having summarized the data on the distribution of flavonoids in a number of families of plants, suggested using the probability of location of different groups of these compounds for hemosystematical forecasting. Thus, in the legume family the presence of the isoflavonoids and flavonols is more likely, the presence of flavones is less likely, and the likelihood of finding flavanones is the least. It is important to add that the families of the *Lotoideae L.* tribe often contain a 3.7-diglikosids, but the *Spartioides L.* section of the *Genisteae* tribe contains 5 flavonoid glycosides.

**Conclusion.** The data on the chemical composition of plants are increasingly being used in the modern classical works on systematics. The assumption that the morphological similarity of species divisibility always determines their chemical composition, can not replace specific hemosystematic research, and vice versa, the lack of a direct relationship between the chemical characteristics and morphology of plants doesn’t deny the existence of certain correlations and their usage to search for a promising plant is a source of holding certain biologically active substances.