The aim of the paper is to research biochemical composition of *Hyssopus officinalis* L. (*Lamiaceae*) in relation to plant age and phenological growth stage under conditions of Ukrainian Polissya, in order to determine the optimal harvest dates of the herbal material and its application spheres.

The raw material samples under analysis were cut at various growth stages: the vegetative, budding, blooming, ripening stages. To study the hyssop oil composition, areal parts of *H. officinalis* were used. The composition analysis was aimed at determining absolute dry matter (by drying samples at 105 °C up to the constant mass), "crude" cellulose, amounts of protein, fats, calcium, potassium, phosphorus, ascorbic acid, carotene, discernible sugars and tannins and essential oil.

The present study has proved that in the plant ontogenesis the amount of essential oil, obtained from *H. officinalis* areal parts, does not markedly decrease: volatile oil yield in plants of the first, second and third years of life amounted to 1.007%, 0.75% and 0.71% respectively. The composition of volatile oil in the plants of the first year of life reveals 46 components, of which pinocampone (53.73%), isopinocampone (4.66%) myrtenol (9.35%) and camphor (3.86%) prevailed. In *H. officinalis* volatile oil of the third year 30 components were identified, the prevailing of which were isopinocampone (44.43%), pinocampone (35.49%), myrtenol (5.26%), germacrene D (3.15%), pulegone (2.93%) and bicyclogermacrene (1.35%).

We could observe the change in the quantitative and qualitative composition of *H. officinalis* volatile oil throughout the entire vegetation period. Thus, in the phase of vegetative growth one can identify 25 compounds, the most predominant being elemol (33.25%), germacren D (21.59%) and bicyclogermacrene (15.78%). In the phase of blossoming 30 components can be identified, a high amount of isopinocampone and pinocampone (44.43% and 35.49%) and somewhat lower amount of myrtenol (5.26%), pulegone (2.93%) and bicyclogermacrene (1.35%).
can be noted. During the fruit-bearing period 21 compounds with the prevalence of elemol (44.46%), bicyclogermacrene (10.30%), germacrene D (5.86%), spathulenol (4.36%), β-eudesmol (4.34%), α-eudesmol (4.04%) and γ-eudesmol (3.92%) can be identified.

*H. officinalis* raw material from one-year-old plants is to be used in food industry, whereas plants collected at the blooming stage are preferable for cosmetics and perfumery.

**Key words:** *Hyssopus officinalis* L., biological active substances, essential oil, pinocampone, isopinocampone.

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