

CONTENT OF DRY SOLUBLE SUBSTANCES IN CHERRIES

Shubenko L.A., Ph.D.s.-g. Sciences, Associate Professor
shubenko.l@ukr.net

Shoh S.S., Ph.D. s.-g. Sciences, Associate Professor
shochss@ukr.net

Pavlichenko A.A., Ph.D. s.-g. Sciences, Associate Professor
pavlichenkoaa@ukr.net

BilaTserkva National Agrarian University

Sweet cherries are characterized by high taste and dietary properties, both fresh and in the form of processed products – compotes, jams, dried. They contain from 5 to 20% of dry soluble substances, 8-15% of sugars, 0,3-1,3% of organic acids, 2,5-12,0 mg / 100 g of ascorbic acid, and also vitamins B₁ (thiamine), PP (nicotinic acid) and P-active substances [1,3]. These substances also include nitrogenous substances, tannins and other substances of phenolic nature, soluble forms of pectins and vitamins, enzymes, mineral salts and the like. Most of this group of compounds is represented by carbohydrates, mainly sugars [2,4].

The content of soluble solids is determined using a refractometer. In some fruits and vegetables (beets, watermelons, grapes) the proportion of sugars is so high that, determining the content of dry soluble refractometer, it is possible to judge the content of sugars with sufficient accuracy [1].

The content of chemical components in cherries depends on the pomological variety and climatic conditions [2,3].

The objects of research were cherries of different varieties of maturity of Ukrainian selection: Aborigenka, Alyonushka, Amazonka, Turquoise, Dar Mlieva, Donetsk coal, Drogana yellow, Zoryana, Mliivska yellow, Meotida, Mirage, Melitopol spotted.

According to the results of the research, the content of dry soluble substances in the fruits significantly depended on the pomological variety of cherries and weather conditions of the growing season. Thus, in 2019 this figure ranged from 12.9 to 18.0%, in 2020 it was 10.5-16.1% and in 2020 - 12.4-19.6%. Despite significant fluctuations in the concentration of dry soluble substances in the fruit over the years of research, the main trends in the varieties remained.

In early maturing varieties in 2019, a high content of dry soluble substances was observed for the variety Mliivska yellow, but the following year the number of this variety decreased by 1.6%, and for varieties Dar Mlieva and Zoryana, on the contrary - increased, respectively, by 1.0 and 1.6% (at $NIR_{05} = 1.52$). In 2021, there was a slight decrease in the amount of dry soluble substances in the fruits of cherries, compared to the previous year.

For medium-ripe during the research the highest result was obtained for the variety Melitopol spotted and only in 2021 the highest percentage of dry soluble substances was in the fruits of the variety Aborigenka - 19.4%. The low content of dry soluble substances was observed in 2020 in the variety Alyonushka, 5.2% less than the

variety Melitopol spotted. In 2021, the lowest indicator was characterized by the variety Aborigenka - 4.9% less than the Melitopol spotted, and in 2021 - the variety Meotida with a value of 13.0%.

The largest fluctuations in the content of dry soluble substances by years were observed for the variety Aborigenka, where the figure in 2021 decreased by 5.2%, and in 2021 by 7.3% increased. In general, the dry matter content in the fruits of medium ripening in 2021 decreased compared to the previous year, which can be explained by the lower average daily air temperature during ripening (17.80C in 2020 and 16.6 0C in 2021).

Analyzing the content of dry soluble substances in the fruits of late ripening cherries, in 2020 it is worth noting the difference in years only in the range of 0.6-0.8%. In 2020 and 2021 for the varieties Turquoise and Donetsk coal the value of the indicator increased compared to other varieties. In other varieties, a sharp difference in the content of dry soluble substances in the fruit was not observed.

Thus, among the studied varieties, the highest content of dry soluble substances was characterized by the medium-ripe variety Melitopol spotted, the lowest content was observed in the medium-ripe variety Alyonushka.

Reference

1. Кіщак О., Кіщак Ю. Черешня: шукаємо істину. [Електронний ресурс]. Режим доступу: <http://www.agrotimes.net/journals/article/ehercslmy8-sluikaemo-istinu>.
2. Кіщак О. А. Основи промислової культури черешні в Лісостепу України: монографія. Київ: Аграрна наука. 2017. 240 с.
3. Шубенко Л.А., Шох С.С., Федорук Ю.В. та ін. Вміст основних хімічних елементів у плодах черешні різних строків досягання. Агробіологія: збірник наукових праць, 2021. № 1. С. 173–179.
4. Бондаренко П. Вплив сорто-підщепних комбінувань та умов року на якість плодів черешні в умовах Південного Степу України. Вісник Львівського національного аграрного університету. Агрономія. № 22(2). 2018. С. 96-102.