



A STUDY OF THE DYNAMICS ANTHOCYANINS ACCUMULATION IN BLACK HAWTHORN SPREAD IN GEORGIA

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Article history:	Abstract:
<p>Received: December 2nd 2021</p> <p>Accepted: January 4th 2022</p> <p>Published: February 10th 2022</p>	<p>There are several species of hawthorn in Georgia, the most important from them is black hawthorn with its healing properties and content of biologically active substances.</p> <p>Black hawthorn is a bushy plant representative of the hawthorn rose family. Information about this plant can be found in the works of Greek philosophers, as far back as the fourth century AD.</p> <p>The biochemical composition of the fruit and flower of the plant is of great interest to scientists because of its medicinal, prophylactic and dietary value. Although black hawthorn has been used in folk medicine for quite long time, the chemical composition of its fruit has not been thoroughly studied. It is known to contain flavonoids: quercetin, camperol, apigenin, herbacetin, 3-methoxyherbacetin and their glycosides: orientin, vitexin, saponaren. The fruit contains anthocyanins, leucoanthocyanidins, phenolic carbonic acids, organic acids, ascorbic acid, pectin, sugar.</p> <p>The use of black hawthorn in folk medicine began 5 centuries ago. It was used for treatment of diarrhea and dysentery. Hawthorn flower decoction was used as a blood purifier, and later began to be taken in diseases of the cardiovascular system. Hawthorn flavonoids are characterized by antioxidant activity.</p> <p>From the chemical substance, that are composed in black hawthorn the one of the most important is Anthocyanins. Anthocyanins are water-soluble pigments that cause different colors of the plant.</p>

Keywords: Black hawthorn, anthocyanins, picking dates.

AIM OF THE RESEARCH:

If we will take into account all that was said above, the aim of our research was to determine when the largest amount of anthocyanins accumulate in black hawthorn, according to that it will be possible to define the time of its picking.

SAMPLE PREPARATION AND RESEARCH METHOD:

The determination of anthocyanins in hawthorn fruit was performed in October-November with a ten-day interval. In order to do this, we took a medium sample, after washing and drying we extracted anthocyanins from it. For extraction we used 96% ethyl rectified alcohol, acidified with 1% hydrochloric acid (HCl). We performed the analyzes by spectrophotometric method of analysis.

THE RESULTS OBTAINED AND THEIR JUDGMENT:

The obtained results are given in Table 1 and Diagram 1.

Table 1.
Dynamics of anthocyanin accumulation in hawthorn fruit

October		November	
Anthocyanins mg/100g			
1-10	38,1	1-10	183,4
11-20	85,9	11-20	185,6
21-31	172,2	21-30	186,5

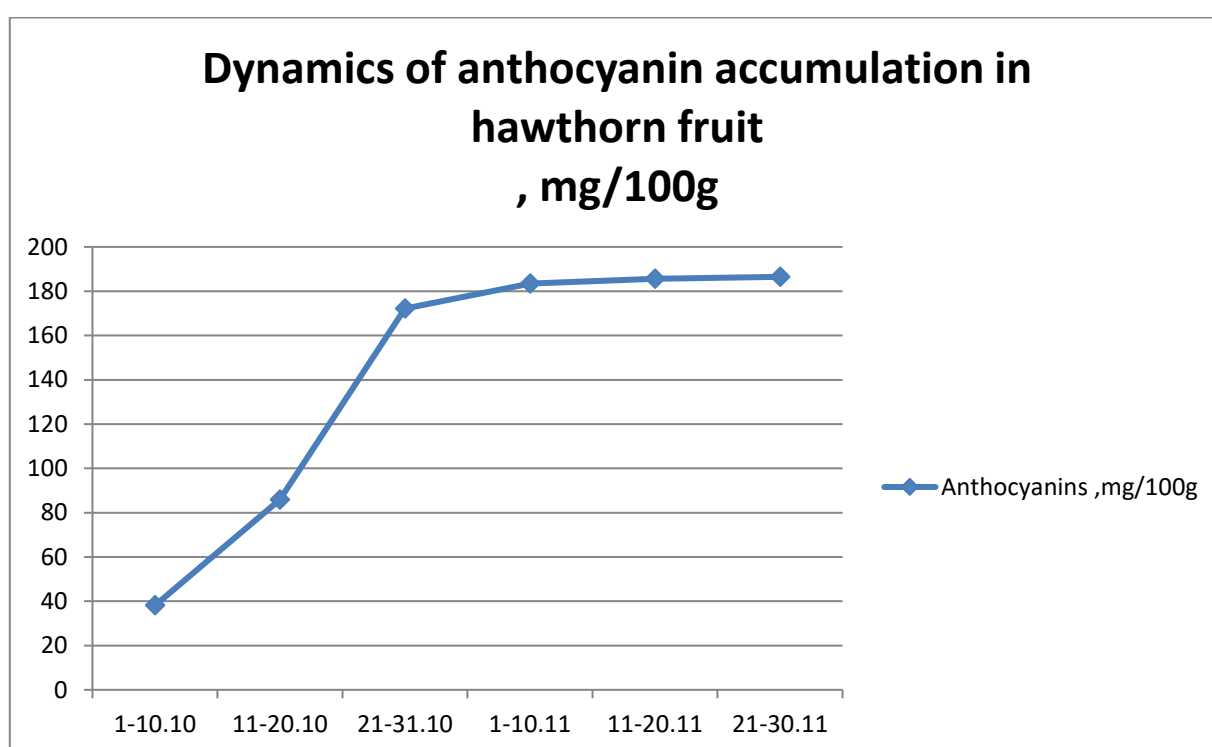


Diagram 1. Dynamics of anthocyanin accumulation in hawthorn fruit.

As can be seen from Table 1 and Diagram 1, an active increase in anthocyanins occurs in late October. At the end of the first third of the month the number of anthocyanins was 38.1 mg / 100 g, at the end of the second third of the month the amount increased by 47.8 mg / 100 g and became 85.9 mg / 100 g, and at the end of the third third of the month the number of anthocyanins was 172. 2 mg / 100 g.

As for November, the increase in the first third of the month was 11.2 mg / 100 g, while at the end of the third third, the total amount of anthocyanins accumulated in November was 14.3 mg / 100 g.

REFERENCES:

- Šamec, Dunja, and Jasenka Piljac-Žegarac. "Postharvest stability of antioxidant compounds in hawthorn and cornelian cherries at room and refrigerator temperatures—Comparison with blackberries, white and red grapes." *Scientia Horticulturae* 131 (2011): 15-21.
- Tian, Ye, et al. "Phenolic compounds extracted by acidic aqueous ethanol from berries and leaves of different berry plants." *Food Chemistry* 220 (2017): 266-281.
- Popovic-Milenkovic, Marija T., et al. "Antioxidant and anxiolytic activities of *Crataegus nigra* Wald. et Kit. berries." *Acta Pol Pharm* 71.2 (2014): 279-285.
- Chatterjee, Shyam Sunder, and Hermann Ernst Jaggy. "Preparations of *Crataegus* species, pharmaceutical compositions and their use for preventing sudden death due to cardiac arrest and reperfusion-caused cardiovascular lesions." U.S. Patent No. 5,925,355. 20 Jul. 1999.