

**DETERMINATION OF THE PERIOD OF THE SAFFRON COLLECTION
ACCORDING TO THE CONTENTS OF PROTOCROCINE
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Abstract: the paper provides a results of experiments based on modern chemical research, which is based on the study of medicinal plant - saffron in Georgia, on the content of biologically active compounds. One of these biologically active substances is the glycoside protection of carotenoid nature, which occurs when the plant is dissolved in a relatively simple glycoside – crocin (is an antidepressant, it has a positive effect on people with nervous disorders and other diseases) and picrocin. Carotenoid Glycosides are found in plants such as saffron, hippophae, savory, rosa canina (dog rose) flower and others.

Keywords: saffron, simple glycoside - crocin and picrocin (picrocrocin), glycoside protection.

**ОПРЕДЕЛЕНИЕ ПЕРИОДА СБОРА ШАФРАНА ПО СОДЕРЖАНИЮ
ПРОТОКРОЦИНА**

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Аннотация: в статье даны результаты эксперимента, полученные на основе современных химических исследований, которые лежат в основе распространенного в Грузии лекарственного растения - шафрана, исследования на содержание биологически активных соединений. Одним из таких биологически активных веществ является гликозид протокроцин каротиноидальной природы и простой гликозид кроцин (представляет антидепрессантное средство и оказывает положительное влияние на человека при нервном расстройстве и других заболеваниях) и пикроцин, полученный при его распаде. Гликозиды каротиноидальной природы встречаются в таких растениях, как шафран, облепиха, чабрец, цветы шиповника и др.

Ключевые слова: шафран, простые гликозиды - кроцин и пикроцин (пикрокроцин), гликозид протокроцин.

The saffron (*Crocus*) is the perennial plant from the Iridaceae family. There are only 5 varieties of saffron in Georgia, mostly in the alpine zone. Saffron is widely used in the food industry - drinking in the beverage - to give the aroma and color. Because of medicinal properties in traditional (folk) medicine, to prepare balm in cosmetics.

Saffron flowers contain amber yellowish ether oils that are exposed to pleasant aromas, carotenoids, protocrocine, its transformation products and etc. The unique medicinal properties of the saffron are caused by the chemical substances in it and its properties and quantities are changed along with the growth of the plant and then drying. The carotenoid nature of glycoside - protocrocine is found in the plant, which can be relatively simple glycosyl - with crocin and picrocytes (picrocrocin) (see fig. 1).

The chemical composition of the saffron product depends on the period of its vegetative period, the time of the picking, the storage and the processing.

To find out what period of time is the compound protocrocine in the plant, as a result of the collapse of protocrocine, various important substances are obtained. We determine the substance in this plant in a different years harvest (2015, 2016, 2017). Saffron flowers were gathered in July, August and September for analysis.

In gathered samples, by the spectrophotometric method of analysis was determined the protocrocine content. Results of three years of analysis in Imereti, Kartli (Tbilisi suburbs) and Guria-Samegrelo regions are given in Table 1. Accumulation of protocrocine (its synthesis) and its subsequent conversion is greatly dependent on environmental factors and climatic conditions. its quantity in the plant changes according to temperature [1, 2, 3, 4, 5].

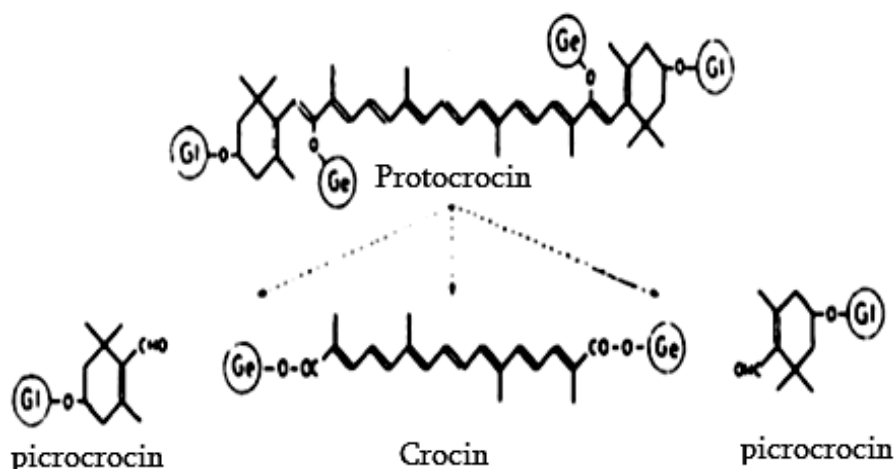


Fig. 1. Transition of glucoside protocrocine into simple glucose - crocine and picrocrocine

Defining the main components in the study samples, we used official methods. To determine the protocrocine used ISO 3632–method of Gloria. we placed samples in 1cm thick cuvetes and in the samples protocrocine has been determined according to the official method of defining the spectrophotometer.

Table 1. Dynamics of accumulation of protocrocine in the saffron in different regions of Georgia, mg / 100 g

Saffron	Protocrocine, mg/100g		
	2015	2016	2017
Guria-Samegrelo			
July	573,7	579,2	598,3
August	535,6	532,5	549,7
September	504,2	509,6	511,9
Imereti			
July	601,4	612,9	603,5
August	573,6	579,9	568,1
September	522,2	527,8	529,6
Kartli, territory around Tbilisi			
July	584,6	591,4	589,8
August	545,5	547,2	569,2
September	503,3	519,1	528,5

As shown in Table, in July of 2015, in the area of Imereti, in the young saffron flower was recorded 601,4 mg / 100 g protocrocine which is more than 27,7 mg / 100 g in Guria in the same period and 16.8 mg / 100 g more than in Kartli. According our analysis is shown that there is more protocrocine in the Saffron flower in Imereti region in July.

The next object of our research was to determine the protocrocine content in Saffron's flower in July, 2017, in different regions of Georgia (Guria-Samegrelo, Imereti and Kartli) in different periods of the month. According to researches, the number of protocrocine in July in Guria-Samegrelo increased from 72,5 mg / 100g to the end of the month, 61.4 mg / 100 g in Imereti region and 70,3 mg / 100 g in Kartli. Although the highest increase in the Guria-Samegrelo region during the month, the Imereti region is distinguished by the total number of protocrocine where the total number of protocrocine is 13,6 mg / 100 g at the end of the month compared to the Kartli region, while Guria-Samegrelo region is 5,2 mg / 100 g.

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