AgilentTechnologies Microsorb-MV-150 column (reversed phase, C18 modified silica gel, length – 150 mm, diameter –4.6 mm, particles size – 5 μm). Substances in the extract were identified by comparing the retention time and the spectral characteristics of the test substances with the same characteristics of the reference standards.

Research results. Using high performance liquid chromatography 5 catechins were identified. Among them epigallocatechin-3-O-gallate (10.85 %) predominated, while catechin (0.61 %) had the lowest con-centration. The total amount of catechins in green tea leaves was 30.56% in the dry raw material.

Conclusions. The qualitative composition and the quantitative content of catechins have been determined in the extract from green tea leaves by high performance liquid chromatography. The high content of catechins makes the extract promising for further study and creation of new herbal medicinal products and dietary supplements.

COMPARISON OF CHEMICAL COMPOSITION AND ANTIOXIDANT ACTIVITY OF EXTRACTS FROM FRESH AND DRIED FRUITS OF 20% ETHANOL EXTRACT OSAGE ORANGE

Sebii S.M., Maslov O.Yu., Komisarenko M.A., Novosel O.M.
Scientific supervisor: Kolisnyk S.V.
National University of Pharmacy, Kharkiv, Ukraine
alexmaslov019@ukr.net

Introduction. Osage orange (*Maclura pomifera*) is a tree belonging to the Moraceae family. Its fruits reach full size (weighing 500 g) every autumn, and each fruit can contain up to 300 seeds. One of the main bioactive compounds (BAC) in the fruits is isoflavonoid derivatives – osajin and pomiferin. Dried raw materials are used for the production of extracts, infusions, and tinctures. However, some changes in the BAC of the raw material occur during drying due to oxidation and etherification reactions.

Aim. Comparison of the chemical composition and antioxidant activity of extracts obtained from fresh and dried osage orange fruits using 20% ethanol.

Materials and methods. The research objects were fresh and dried osage orange fruits. The fruits were collected during the fruiting period near the village of Kalanchak in the Kherson region. The extracts were obtained as follows: 10.0 g of crushed osage orange fruits (1-2 mm) were extracted with 20% ethanol at a raw material/solvent ratio of 1/20 (*w/v*) in a water bath at 80°C with a reflux condenser for 1 hour. After cooling, the solutions were filtered and concentrated to 10 mL using a rotary evaporator at 40°C under vacuum.

The total phenolic compounds were determined using the Folin-Ciocalteu method, and the optical density was measured at a wavelength of 760 nm. The total flavonoids were determined by the differential spectrophotometry method with $AlCl_3$, and the optical density was measured at a wavelength of 417 nm. The total hydroxycinnamic acids were determined based on complex formation with $NaNO_2$-Na_2MoO_4, and the optical density was measured at a wavelength of 525 nm.

The antioxidant activity of the extracts was assessed using a potentiometric method.

Research results. In the obtained 20% ethanol extracts from fresh and dried fruits, the content of phenolic compounds, flavonoids, and hydroxycinnamic acids was higher in the extracts obtained

from fresh raw material. Additionally, the results presented in Table 1 show that the antioxidant activity level of extract from fresh osage was higher than in extract from dried fruits.

Table 1. Antioxidant activity level of extract

Raw material	Extractant	Total phenolic compounds content, %	Total flavonoid content, %	Total hydroxycinnamic acids, %	Antioxidant activity, mmol-equiv./$m_{dry\ weight}$
Fresh fruits	20% ethanol	0.41±0.02	0.10±0.005	0.29±0.01	43.19±0.86
Dry fruits		0.29+0.01	0.07±0.005	0.21±0.01	30.90±0.62

n=3, $p<0.05$

Conclusions. Extract from fresh raw material had a higher content of bioactive compounds and antioxidant activity compared to those from dried raw material. Thus, it is advisable to use fresh osage orange fruits in the development and production of phytopreparations with antioxidant properties.