



This project is funded by the European Union



Romania-Republic of Moldova ENI-CROSS BORDER COOPERATION



TECHNICAL UNIVERSITY OF MOLDOVA



„ION IONESCU DE LA BRAD” IASI UNIVERSITY OF LIFE SCIENCES



INTELLIGENT VALORISATION OF AGRO-FOOD INDUSTRIAL WASTES (INTELWASTES) 2SOFT/1.2/83

<https://intelwastes.utm.md>

www.ro-md.net

INFLUENCE OF HEAT TREATMENT ON THE YIELD OF EXTRACTION OF BIOACTIVE COMPOUNDS IN APPLE POMACE

Tatiana CEȘCO, Rodica STURZA, Natalia ȚISLINSCAIA, Nadejda TURCULEȚ, Aliona GHENDOV-MOȘANU

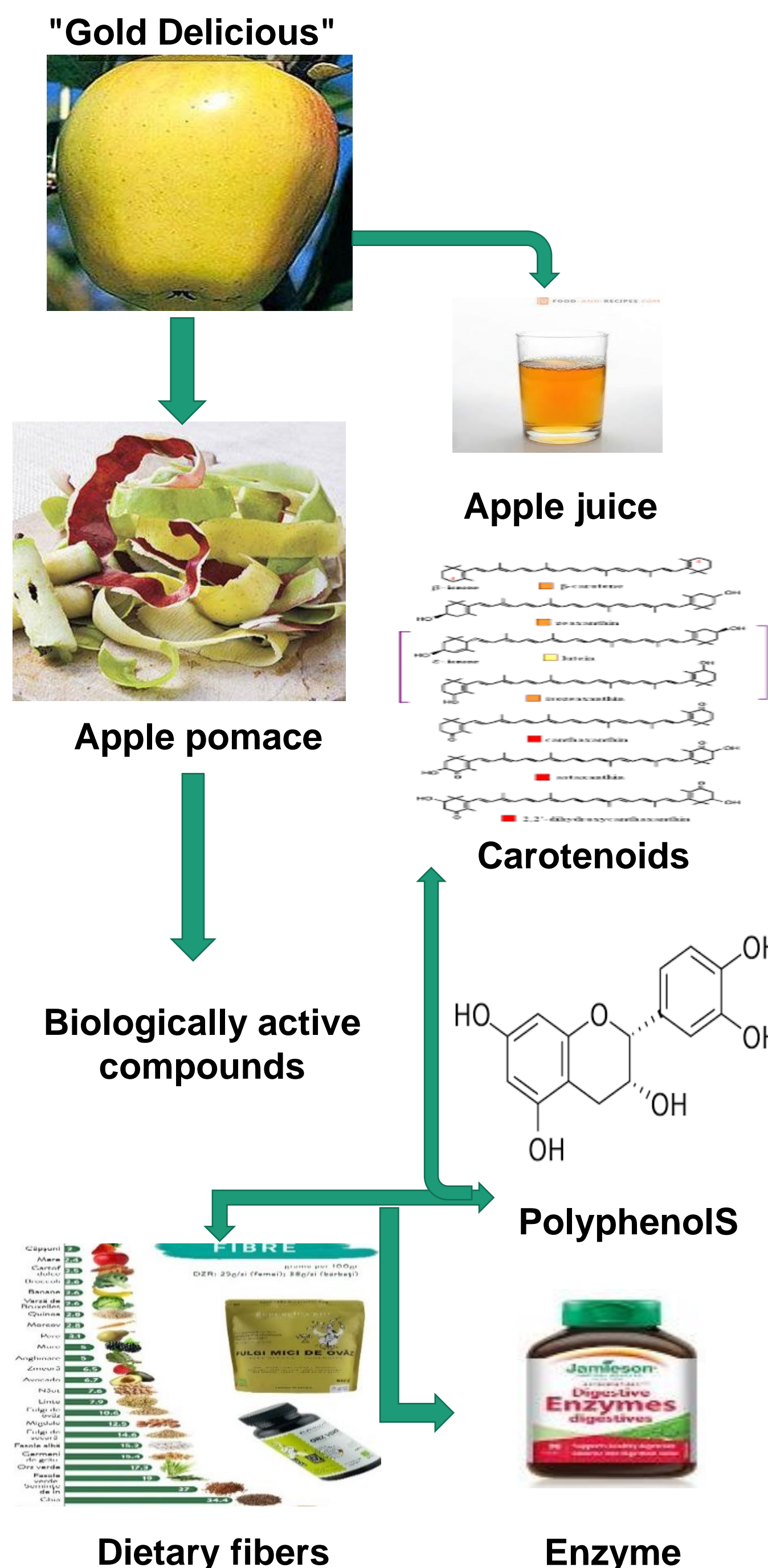
Technical University of Moldova, 168 Stefan cel Mare Bd., Chisinau, Republic of Moldova

* Corresponding author: Tatiana Ceșco, tatiana.cesko@saiem.utm.md

GOAL OF THE STUDY. The purpose of this research was to study the influence of the temperature of the heat agent in the convective drying of apple marc on the yield of bioactive compounds.

METHODOLOGY OF THE INVESTIGATION.

Apple pomace was obtained after squeezing apple juice of the "Gold Delicious" variety. The pomace was dried by convection method in the temperature range 60-80 °C to the final moisture of $12.0 \pm 0.13\%$. After convective drying the pomace was grind up to the granulosity of $140 \pm 10\mu$ and sieved. The total content of polyphenols, tannins and carotenoids was determined by the spectrophotometric method. Two types of extracts were obtained: 60 % (v/v) hydroethanolic to determine the content of phenolic compounds and extracts with a mixture of solvents methanol/ethyl acetate/petroleum ether (1:1:1, v/v/v) for the total carotenoid content.



MAIN RESULTS FROM THE STUDY.

It was found that by increasing the temperature of the thermal agent from 60 to 80 °C the highest extraction yield of the total content of polyphenols and tannins is attested at a temperature of 70 °C, and the lowest at a temperature of 80 °C. The high temperatures damaged to the cell wall and triggered the release of polyphenol oxidase and peroxidase enzymes, which helps to reduce the content of phenolic compounds. In the case of carotenoids, the highest yield was obtained in the dry samples at 80 °C and the lowest at 60 °C. This phenomenon can be explained by the fact that convective drying at low temperatures for a long time exposed the carotenoids to the action of oxygen, causing their extensive degradation. Also, the enzymes lipoxygenase and peroxidase are responsible for the oxidative degradation of carotenoids.

CONCLUSIONS. drying apple pomace by the convection method at different temperatures has a significant effect on the composition of biologically active compounds.

ACKNOWLEDGMENTS. The authors would like to thank the Project AUF Les déchets horticoles au service de la santé et de l'environnement, une nouvelle approche du principe « Zéro déchet » (ZERODECHET).