

Phytochemical composition of hydro-ethanolic extracts from *Cucumis metuliferus* E. Mey. fruit peels

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According to recent research, a variety of inedible portions of fruits and vegetables, as well as food waste, are excellent sources of phytochemicals that may be isolated and reintroduced as natural food additives into the food chain [1]. Besides the food industry, natural product from non-edible parts of the fruits of Cucurbitaceae family can be used in other industries such as cosmetic and pharmaceutical and the fact that the plants in this family are also used medicinally makes them excellent research subjects for the study of plants with high therapeutic potential [2]. The focus of our study was the solid/liquid extraction of lyophilized fruit peels of *Cucumis metuliferus* E. Mey. (Cucurbitaceae) under different extraction conditions such as extraction time (min), ethanol/water ratio (%) and power of ultrasonic bath (%). It was aimed as well to determine the phytochemical composition of 25 different ethanolic and hydro-ethanolic extracts by performing UHPLC-QToF-MS analysis. The **Figure 1** shows the fruit of Horned Melon (*C. metuliferus*) and the exocarp as part of fruit used for extraction. Under different extraction conditions percentage yields of the dry extracts varied between 26.37% - 43.98%, obtaining the optimal extraction conditions as follows: EtOH (%): 50; Amplitude (%): 40; Time (min): 30. Furthermore, chemical profiling of the extracts revealed the presence of the following compounds: *p*-hydroxybenzoic acid, dihydroxybenzoic acid, galloyl pentoside, dihydroxybenzoyl pentoside, hydroxybenzoyl hexoside, vanilloyl hexoside and hydroxybenzoyl rhamnosyl hexoside. This is the first study that highlights the optimization of extraction conditions of the *C. metuliferus* peels, as well as chemical identification of bioactive compounds present in the extracts. Our future observations will be oriented towards exploring bioactive properties of the obtained extracts and further incorporations in food matrices.



Fig.1. Horned Melon fruit

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References:

- [1] V. Šeregelj, O. Šovljanski, V. Tumbas Šaponjac, J. Vulić, G. Četković, S. Markov, J. Čanadanović-Brunet, *Processes*, 10 (2022) 94.
- [2] V. Luchian, G. Teodosiu, *Scientific Papers. Series B, Horticulture*, 63, (2019), 1.