Green Extraction Technique, Microwave: To Investigate Possibility of use to Maslinic and Oleanolic Acids Extraction from Olive Mill Pomace

Nazlı Arslan, Nergis Odabası, Gulcan Ozkan, Serife Cevik, Erkan Karacabey

Suleyman Demirel University, Faculty of Engineering and Architecture, Department of Food Engineering, Isparta, TURKEY

Maslinic acid and oleanolic acid are pentacyclic triterpenic phytochemicals extracted from the olive fruit and leaves. Dried pomace and pomace oil, which are a by product of the processing of olive oil is a good source for both components. In this study, it was aimed to investigate the usage potential of the microwave-assisted Soxhlet system (green extraction technique) for the production of maximum maslinic acid and oleanolic acid yields with high qualities from olive mill pomace which is not taken into account and evaluated commercially as it needs to be in our country.

Within the scope of this study, experimental design for optimization of maslinic acid and oleanolic acid extraction by microwave-assisted Soxhlet system was planned through Central Composite Design using different extraction temperatures (25.86 - 54.14 °C) and time periods (2.93-17.07 min). The trial experimental design has been optimized to extract for maximum triterpene yields relatively at the lowest temperature and within the shortest period of time. In conclusion, maslinic and oleanolic acid extraction model for performance and reliability ($R^2$) had a high importance level and were identified as respectively 93.67 % and 90.78 %. According to results of microwave extraction, the highest amount of maslinic and oleanolic acids were obtained at 40 °C for 10 minutes and 40 °C for 2.93 minutes. It has been detected that the rise of the temperature till the certain level has favourable positive effects upon extraction on maslinic and oleanolic acids yields, however the highest extraction temperatures influences extraction negatively. The amount of time has got influence on extraction not only by itself alone, but also depending on the level of the temperature. It has been identified as the results of microwave extraction that maximum yields of maslinic and oleanolic acids which were found to be 1.52 and 1.24 times more efficient than Soxhlet extraction.
Keywords: Olive Mill Pomace, Maslinic acid, Oleanolic acid, Microwave, Soxhlet, Extraction Optimization, Response Surface Methodology.

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