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Optimizing the extraction of pectin from apple pomace

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GOAL OF THE STUDY. Analysis of the pectin quality extracted from fresh apple pomace, from frozen and dried pomace, obtained at the Floresti juice factory.

METHODOLOGY OF THE INVESTIGATION. For each type of raw material, the extraction conditions (solvent volume, acid concentration, duration and temperature) were optimized to obtain a maximum yield.

MAIN RESULTS FROM THE STUDY. Unpurified pectin, extracted from fresh pomace, has a lighter color and a characteristic luster. Unpurified pectin, extracted from dried apple pomace, is brown. Pectin obtained from frozen pomace contains starch, which gives it a matte appearance. The mass fraction of extracted crude pectin varies between 14-34% DW, depending on the nature of the raw material and the extraction conditions. Fresh apple pomace is an excellent source of pectin (22-34%), the pectin obtained is more hygroscopic. Dried apple pomace is also a rich source of pectin (26-30%), for its extraction a lower volume of solvents is required. Frozen apple pomace showed a lower yield (14-18%), due to the lack of heat treatment of pomace before freezing to deactivate the enzymes responsible for pectin degradation.

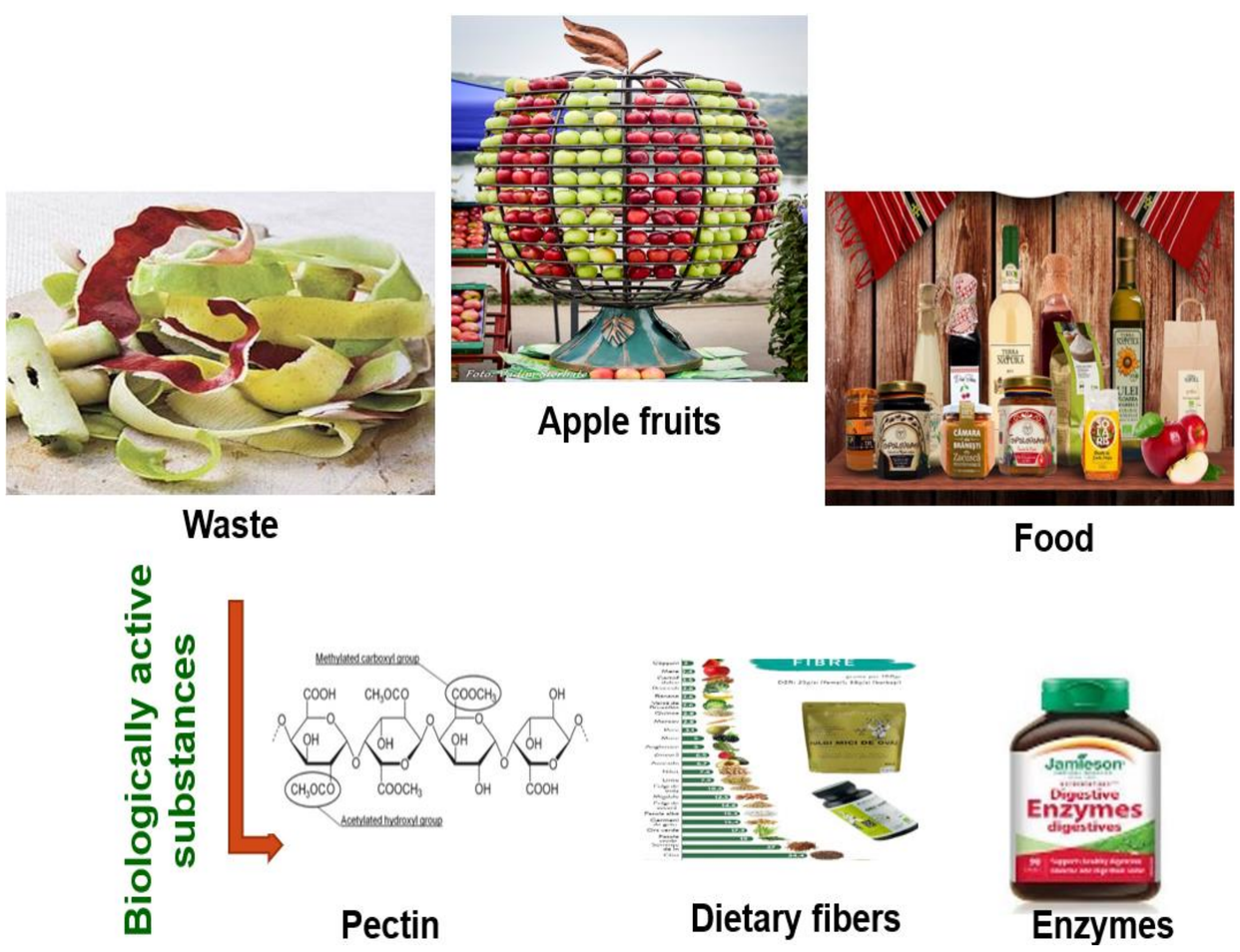

Figure 1. Extraction of biologically active substances from agro-industrial waste in the processing of apple fruits

a) b) c)

Figure 2. The appearance of pectin extracted from fresh apple pomace (a), from frozen (b) and dried pomace (c)

CONCLUSIONS. Apple pomace, resulting from the extraction of juice, presents agro-industrial waste being a source of biologically active substances, especially pectin, carbohydrates, enzymes. The quality of pectin is influenced not only by the extraction conditions but also by the storage conditions of the grape pomace.

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