

UNRIPE APPLES – SOURCE OF NATURAL ORGANIC ACIDS

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Unripe apples, obtained from agrotechnical operations and physiological falls, are not used for food. In particular, in years with insufficient soil moisture, in the orchard about 25-30% of the expected fruit is removed (Peșteanu A. et al., 2018). These fruits are a source of native organic acids. The titratable acidity of those is mostly determined by the presence of malic (70-90%) and citric acids (Bandić L. M. et al., 2019). Natural acidifiers are currently needed in the food industry. Environmental protection has also become a major issue.

In this study was approached the possibility to valorize unripe apples in order to obtain the natural acidifier. Research has focused on determining titratable acidity in unripe apples of 4 varieties: Coredana, Golden Rezistent, Rewena and Reglindis. Other physicochemical indices were also determined. These were picked between June – July 2020. The fruits were harvested during development at 45th, 58th, 71st, 84th and 97th days after the full bloom. The extract was obtained from these fruits and were determined some physicochemical indices. The titratable acidity (expressed in malic acid) in the extracts was determined by titration with NaOH (of 0.1 N). The values of this index decreased on average from 2.80% to 1.50%, depending on the variety. The acidity decreased during the development of the fruits, but the pH values increased non-essential. Total sugar increased considerably as the fruit grew. The dry matter content of the fruits increased continuously for all the apple varieties analyzed. There was a sudden increase in them around the 84th day after full flowering.

Unripe apples represent a source of native organic acids and other valuable substances. The valorisation of these fruits is one of the promising ways to supplement the need for natural acidifiers in the food industry.

Keywords: unripe apples, natural acidifier, organic acid

References

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