

# Evaluation of the processing method on the bioactive compounds level in apple juice

## Problem

Consumers of organic food are looking for products with high nutritive value. Therefore, the processing methods should preserve the highest possible level of bio-compounds in the products. The case of apple juice has been analysed.

## Solution

The ProOrg project identifies the best processing methods, covering 3 main criteria: high nutritive value, good sensory properties, and pro-environmental aspects. Different methods of fruit juice production have been analysed. Some of them are very sophisticated and not used frequently, such as ultra-high-pressure homogenisation (UHPH), thermos-sonication, or ozone processing. The most common methods are centrifuging and squeezing plus pasteurisation. Therefore, the focus has been on these methods.

## Impact

Squeezing proved a better method for apple juice production than centrifuging. Apple juice contains more phenolic acids when it is prepared by squeezing compared to centrifuging. For the organic juice, a difference is statistically significant; for the conventional juice, it is a tendency. On the other hand, the efficiency is higher when centrifuging is used, as compared to squeezing. This has impact on the economic aspect, with a higher price of squeezed juice.

## Practical recommendation

- **Apple juice producers should use squeezing as the main method of juice production. This is especially important for organic producers who can claim on the label that they use more careful methods of processing because they care about the health of the consumers.**
- **Quality over quantity should be a motto for producers. They can also claim that squeezed juice has a higher nutritive value than the centrifuged one.**
- **Nutritive quality of organic vs. conventional apples: The results also indicate that organically produced juices contain more polyphenols, in particular more phenolic acids and flavonoids, than conventionally produced juices. Likewise, the levels of total sugars and vitamin C are higher in the organic compared to conventional juices.**
- **In sum: The nutritional value is higher in the case of juice made from organically grown apples. This is a good argument for the producers to promote their organic products at the market.**

## Applicability box

### Theme

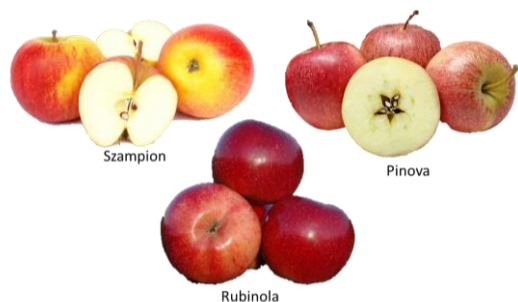
Food processing

### Keywords

Fruit juice, apple, squeezing, polyphenols, vitamin C

### Equipment

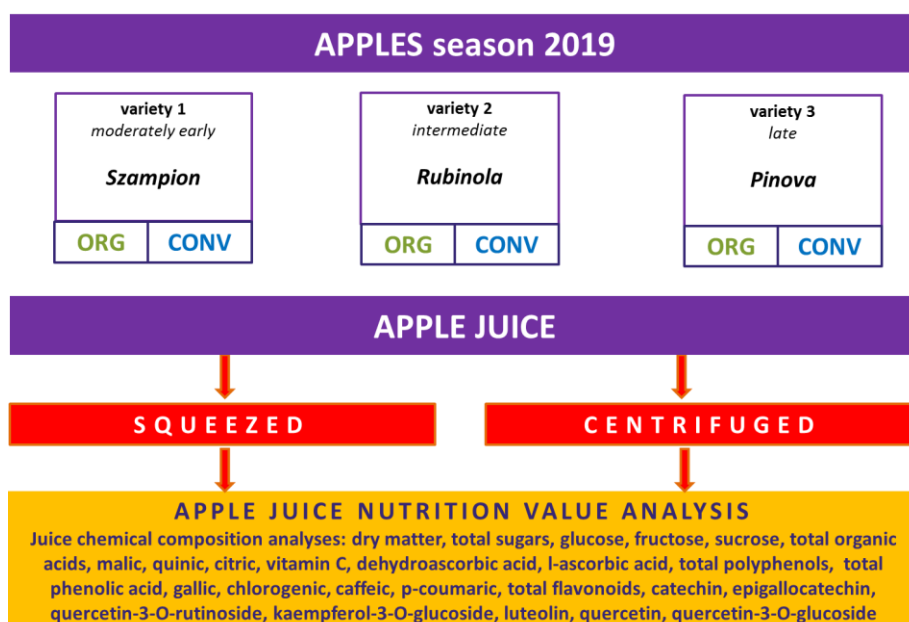
Squeezer, centrifuge



**Picture 2: Cultivars of apples used for the juice production**



**Picture 1: Preparation of the apple juice by squeezing method**



**Figure 1: Design of the experiment with apple juice**

## Further information

### Weblinks

- Check the [Organic Farm Knowledge Platform](#) for more practical recommendations.
- Project web page: <https://www.proorgproject.com/>

## About this practice abstract and ProOrg

**Publisher:** Warsaw University of Life Sciences

**Authors:** Rembiałkowska E., Hallmann E., Kazimierczak R., Średnicka- Tober D., Barański M., Kaniewska-Skoczylas A., Misztal K.

**Contact person:** Rembiałkowska E.

**Permalink:** <https://orgprints.org/39889/>

**ProOrg:** This practice abstract was elaborated in the ProOrg (Code of Practice for Organic Processing) project. The project is running from May 2018 to April 2021, as part of the CORE Organic Cofund.

**Project website:** <https://www.proorgproject.com/>

**Project partners:** CREA, UNIVPM, ASOBIO, KU, WUR, TI, FH MU, AÖL, WULS, FiBL, ACTIA, ITAB, INRAE

© 2020