

## NON-DAIRY KEFIR BEVERAGES BASED ON APPLE JUICE WITH ADDITION OF FRESH APPLE PIECES

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### INTRODUCTION

Water kefir is a slightly acidic fermented beverage produced by the work of unique composition of water kefir microorganisms, known as water kefir grains. Unlike dairy kefir, the production of water kefir is based on sucrose solution as fermentation substrate. The aim of this study was to compare the suitability of diluted freshly made apple juice and apple juice bought in a local market for production of water kefir in terms of physico-chemical and sensory properties. The influence of addition of chopped apple pieces in previously prepared fermentation medium, was also investigated

### METHODS



- Fermentation process was performed at 24 °C, during 48 or 72 h, depending on the type of substrate used for water kefir production, in the glasses covered with parafilm;
- Physico-chemical (pH value, total soluble solids, titratable acidity, volatile acid content, ethanol content, total phenolics content and antioxidant activity) and sensory properties of different types of water kefir were analyzed immediately after preparation (0), then after 24, 48 and 72 h.

### RESULTS

Table 1. Physico-chemical properties of water kefir samples

Sample	pH	TSS (°Bx)	TA (% citric acid)	VAC (% acetic acid)	Ethanol (% v/v)	TPC (mg/l)	DPPH (mg/l)
1. (0 h)	3.23	7.00	0.50	0.11	0.05	6.0654	21.4392
2. (0 h)	3.30	7.00	0.37	0.08	0.04	18.0440	30.8865
3. (0 h)	7.28	7.00	0.03	0.01	n.d.	n.d.	n.d.
1. (24 h)	3.17	5.80	0.54	0.22	0.30	12.2123	31.6245
2. (24 h)	3.24	6.00	0.40	0.16	0.23	27.6915	59.2999
3. (24 h)	5.88	6.70	0.07	0.08	0.03	0.3052	9.4539
1. (48 h)	3.06	3.30	0.57	0.26	0.50	12.7682	33.4808
2. (48 h)	3.11	4.50	0.47	0.20	0.42	30.8214	61.5881
3. (48 h)	5.44	6.50	0.07	0.10	0.12	0.5642	10.8460
3. (72 h)	5.01	5.60	0.10	0.13	0.28	0.6391	12.8874

#### Water kefir beverages based on:

- ✓ FRESHLY MADE APPLE JUICE (sample 1)
- ✓ APPLE JUICE BOUGHT IN A LOCAL MARKET (sample 2)
- ✓ SUCROSE SOLUTION WITH ADDITION OF CHOPPED APPLE PIECES (sample 3)

### CONCLUSIONS

In the case of water kefir based on apple juices, the fermentation process at 24 °C took 24 h, but the recognizable aroma and refreshing carbonated taste were not achieved even after 72 h, in the case of water kefir sample with fresh apple pieces. Considering all physico-chemical and sensory properties of prepared water kefir, it was concluded that water kefir based on apple juice bought in a local market had the most desirable fruity taste and optimal overall quality, compared to the other investigated samples.

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