Method OIV-MA-VI-01 : R2018
Type II method

Determination of total acidity content in vinegars

(OENO 52/2000
OIV-OENO 597-2018)

1. Definition

The total acidity refers to a vinegar whose acidity can be titled in the presence of phenolphthalein in an alcoholic solution, used as indicator.

2. Principle

Neutralization of acids in sample by alkali solution.

3. Reagents

3.1. Solution of sodium hydroxide 0.5M

3.2. Indicator – phenolphthalein alcoholic solution at 1 g per 100 ml.

In a calibrated flask, capacity 100 ml, dissolve 1 g of phenolphthalein with a sufficient quantity of ethanol at 95% (v/v) and bring up to the line.

4. Equipment and ustensils

Standard laboratory equipment.

5. Preparation of sample

Thoroughly mix the sample by stirring and filter if necessary.

6. Technique[1]

In a 250-mL conical flask, add 10 mL of vinegar. Add water, free of carbon dioxide, so that the solution is barely coloured. Add a few drops of the indicator (3.2) and titrate with the sodium hydroxide solution (3.1) until a persistent pink coulour is obtained.

Note: Titration may also be monitored by potentiometry, taking into consideration the respective equivalence point.

7. Results

7.1. Calculation

Considering

- **V** the volume in ml of the sodium hydroxide solution using in titling.

The total acidity content expressed in grams of acetic acid per l of sample will be given by

$$3\,V.$$

7.2. Presentation

Round off the results in grams of acetic acid per liter to the nearest decimal.

8. Interlaboratory validation (hitos et al., 2000)

Units : %(m/V)

Sample	r	S_r	RSD_r	R	S_R	RSD_R	RSD_R (Horwitz)	Horrat Index
1 – 0.17% (m/v)	0.0628	0.022	0.27	0.1570	0.560	0.67	2.90	0.23
2 – 0.17% (m/v)	0.0742	0.026	0.23	0.2127	0.076	0.67	2.78	0.24
3 – 0.08% (m/v)	0.0617	0.022	0.20	0.2197	0.078	0.70	2.78	0.25
4 – 0.07% (m/v)	0.0559	0.020	0.17	0.1543	0.055	0.46	2.75	0.17
5 – 0.08% (m/v)	0.0738	0.026	0.23	0.3544	0.0127	1.13	2.78	0.41

9. Bibliography

1. Anonymous, 1993, Métodos Oficiales de Análisis, Tomo II, Ministério de Agricultura, Pesca y Alimentación, Madrid, Spain.
2. AOAC, 1984, Official Methods of the Ass. Offic. Agric. Chem., 14th edit., Arlington USA.
3. Curvelo-Garcia A.S. and Laureano O., 1993. Organization of collaborative studies and comparison of various statistical models, Commission II Report (III.A) of the 73rfd General Meeting of the OIV, San Francisco, USA.
4. AOF/WHO – Commission of Codex Alimentarius, Methods of analyzing the European regional standard for vinegar, Alinorm 83/19 and 85/19.
5. Hitos P., Pons A., Martin de la Hinojosa, I, Gomez R., Hernandez A. and Muñoz J.,

2000. Validation of analysis methods for total, fixed and volatile acidity of non-volatile reducing substances, copper and zinc in wine vinegars, Green Sheet of OIV No. 115.

[1] CPIV has described a method, using the potentiometric titration.