



DETERMINATION OF ORGANIC ACIDS AND SOME PRESERVATIVES IN WINE AND SPIRITS

LUMEX Organic Acids Chemical Kit_Wines

INTRODUCTION

The organic acids profile in wine is a highly informative parameter since it reveals important features of the whole technological process. It is also one of the most important criteria for wine authentication. In spirits like cognac, brandy or whiskey, the presence of certain organic acids can indicate the violation of distillation or maturation processes or reveal the tendency to precipitate during storage.

Some organic acids (sorbic, benzoic, ascorbic) can serve as preservatives; their presence is strictly regulated. Although the presence of sorbic acid in alcoholic beverages can be natural in some cases, in other cases it can indicate severe violation of the technological process or even complete falsification.

LUMEX INSTRUMENTS offers a specially developed **Organic Acids Chemical Kit_Wines** together with a detailed analytical protocol, which allows the determination of most important organic acids like **succinic, malic, tartaric, citric, acetic, and lactic in wines, wine products, and spirits**. Some other organic acids (gluconic, oxalic, etc.) and also some preservatives like sorbic acid, benzoic acid, and ascorbic acid can be also quantified by this kit.

Analytical method based on the developed LUMEX INSTRUMENTS protocol has been certified by **French Certification Committee COFRAC**.

MEASUREMENT METHOD

The capillary electrophoresis method for the determination of organic acids is based on their differential migration and separation in a fused silica capillary under the influence of an electric field. Sample pretreatment includes simple dilution with water. CE separation is completed within 7 minutes.

EQUIPMENT AND REAGENT

The CAPEL[®]-105M capillary electrophoresis system is used in measurements. Data acquisition, collection, processing and output are performed using a personal computer running under WINDOWS[®] XP/7 operating system with installed dedicated software package ELFORUN[®]. All reagents must be of analytical grade or better.

EXAMPLE OF A REAL ANALYSIS

BGE: from Kit_Organic Acids_Wines

Capillary: $L_{\text{eff}}/L_{\text{tot}}=40/50$ cm, $ID=50$ μm

Injection: 300 mbar*sec

Voltage: -15 kV

Temperature: +20^oC

Detection: 190 nm, direct

Sample:

Young rose wine (upper trace)

Old red wine (low trace)

Found:

1 – succinic acid (0.47 g/L; **0.66 g/L**)

2 – malic acid (2.2 g/L; **n.d.**)

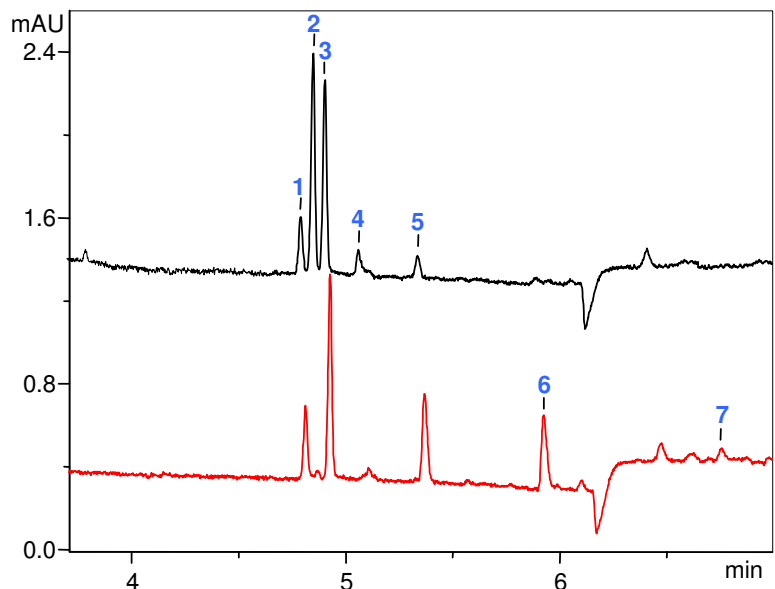
3 – tartaric acid (2.1 g/L; **1.9 g/L**)

4 – citric acid (0.19 g/L; **n.d.**)

5 – acetic acid (0.33 g/L; **1.4 g/L**)

6 – lactic acid (**n.d.**; **1.6 g/L**)

7 – sorbic acid (**n.d.**; **0.85 mg/L**)



The contents of this paper are subject to change without notice.

The information in this leaflet is supplemental. To get more specific information on this method, please contact the developer of this method Lumex Instruments Group.

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