



Determination of **organic** acids in fodder additives

INTRODUCTION

The method is used for the determination of the mass concentration of oxalic, formic, fumaric, succinic, malic, citric, acetic, propionic, lactic, benzoic, sorbic, butyric acids in samples of **fodder additives** and butyric acid in samples of **silage** and **haylage** by capillary electrophoresis. For the determination of ascorbic acid and its salts in samples of food additives and fodder additives use the Lumex Instruments set, order No. 0300002717.



MEASUREMENT METHOD

The measurement method is based on capillary zone electrophoresis with direct UV detection at the wavelength of 190 nm.

MEASUREMENT RANGE

The measurement ranges for the components are presented in the table below.

Compounds	Measurement range, %	Compounds	Measurement range, %
Acetic acid	0.1–80	Lactic acid	0.12–80
Benzoic acid	0.005–50	Malic acid	0.05–80
Butyric acid	0.05–50	Oxalic acid	0.03–10
Citric acid	0.05–80	Propionic acid	0.1–80
Formic acid	0.15–80	Sorbic acid	0.025–50
Fumaric acid	0.005–80	Succinic acid	0.05–80

Inorganic anions (chloride, sulfate, nitrate and phosphate) in concentrations, typical for the mentioned samples do not deteriorate organic acids determination.

EQUIPMENT AND REAGENTS

The Capel capillary electrophoresis system is used in measurements. Data acquisition, collection, processing and output are performed using a personal computer running under Windows® operating system with Elforun software installed. Lumex Instruments set, order **No. 0300001897**.

EXAMPLES OF REAL ANALYSES

BGE: phosphate I with CTAB

Capillary: L_{eff}/L_{tot} 40/50 cm, ID 50 μ m

Injection: 450 mbar \times s

Voltage: -17 kV

Temperature: 20 °C

Detection: 190 nm

Sample: fodder additive

Found (%):

- 1 – formic acid (9.4)
- 2 – fumaric acid (0.5)
- 3 – acetic acid (4.4)
- 4 – propionic acid (11)
- 5 – benzoic acid (0.22)
- 6 – sorbic acid (0.25)

