



VILLA LABECO s.r.o.
Chrapčiakova 1
052 01 Spišská Nová Ves

ISOTACHOPHORESIS

APPLICATION NOTE No. 16

DETERMINATION of ASCORBIC ACID in FOOD

MAIN FEATURES:

Ascorbic acid (vitamin C) is added into some food as antioxidant but at present it is widely used as food supplement in vitamin drinks, tablets, sweets, etc. Taking into account importance of vitamin C there is very often analysis. By capillary ITP it is very simple, quick and with a minimum pre-treatment of sample to determine ascorbic acid in liquid and solid samples with high precision and accuracy. There is possible simultaneously to determine also citric acid during analysis of drinks on preseparation column. For more simple matrix it is possible to work by method of calibration curve but for more complicated matrix (tablets, salad) it is more accurately to use method of standard addition..

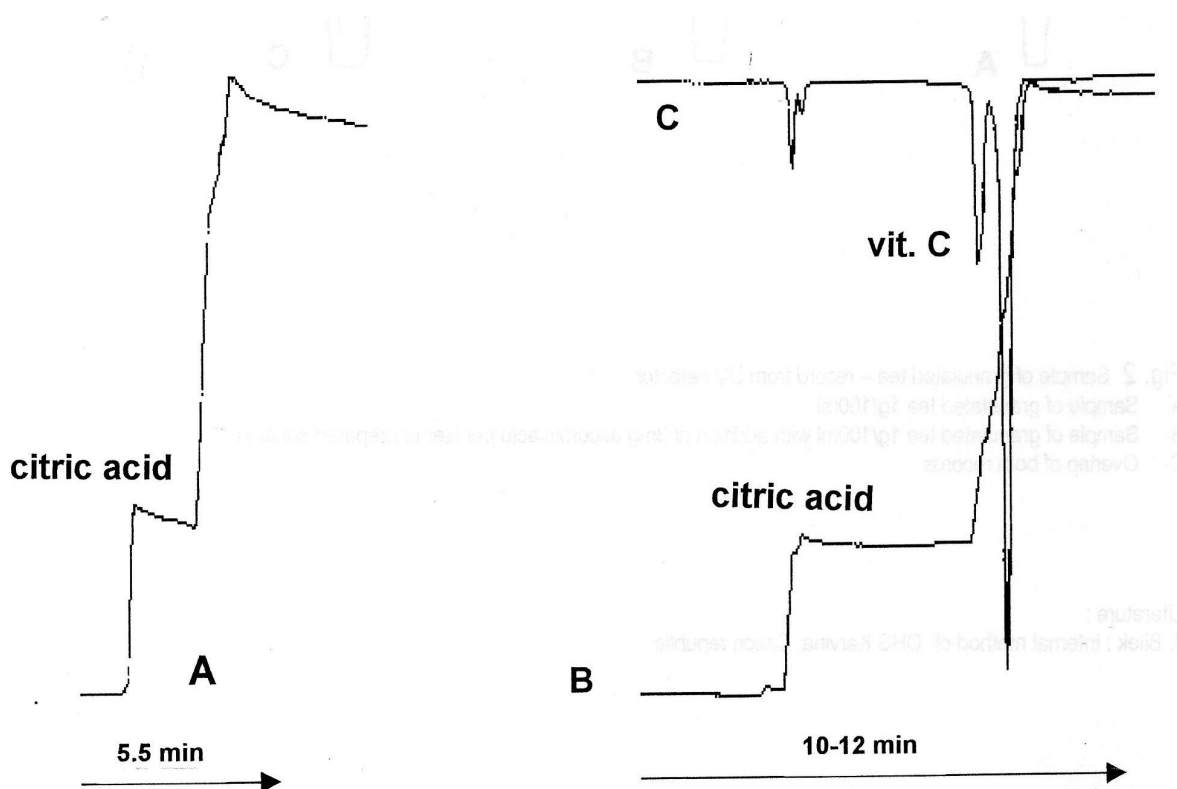


Fig. 1 : Analysis record of orange drink. Sample was diluted 50-times.

A – record from conductivity detector of preseparation column (determination of citric acid)

For analytical column it is better to separate citric acid

B – record from conductivity detector of analytical column

C – record from UV detector of analytical column

Conditions :

leading electrolyte (LE): 10^{-2} M Cl + β -alanine + 0,1MHEC , pH=3,9

terminating electrolyte (TE): $5 \cdot 10^{-3}$ M caproic acid

V=30 μ l, I_1 = 250 μ A, I_2 = 50 μ A

Sample preparation :

Drinks are analysed directly after suitable dilution (2-10 mg ascorbic acid), solid samples (tablets) have to be homogenized then it is necessary to add 10 ml of 2% oxalic acid, all to extract in ultrasound, then to fulfill up to defined volume (100 ml), then to filtrate and to analyse by ITP.

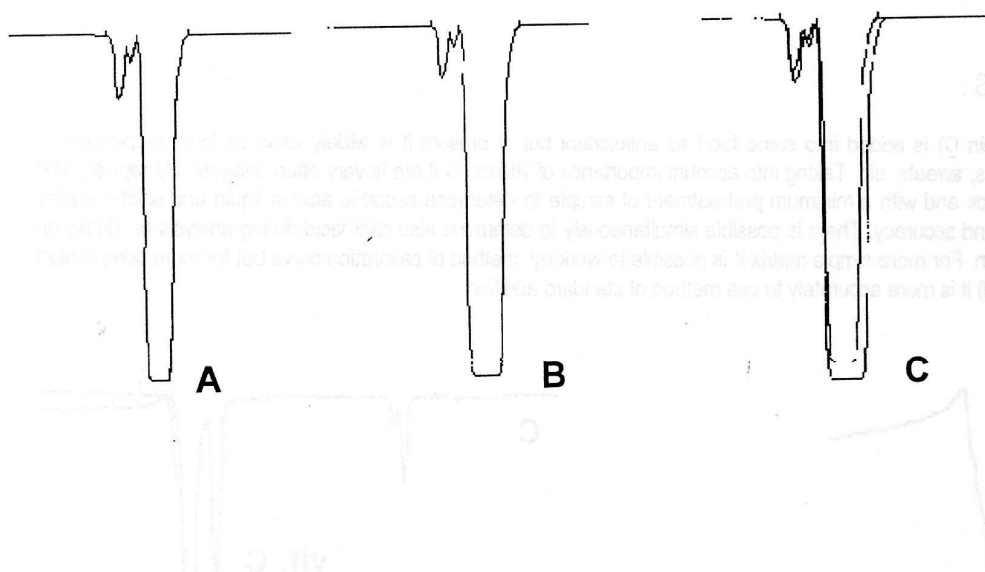


Fig. 2 : Sample of granulated tea – record from UV detector

A – sample of granulated tea 1g/100ml

B – sample of granulated tea 1g/100ml with addition of 3mg ascorbic acid per liter of prepared solution

C – overlap of both records

Literature :

J.Bílek, internal method of OHS Karviná, Czech republic

CZE and ITP analysers are produced by :

Villa Labeco s.r.o., Chrapčiakova 1, 052 01 Spišská Nová Ves, Slovakia

www.villalabeco.sk