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Fast determination of ascorbic and isoascorbic acid by capillary electrophoresis

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ABSTRACT

This work aimed to validate an analytical method to determine ascorbic and isoascorbic acids in fresh and commercial orange juices samples. Figure 1 illustrates the separation of analytes under optimized analytical conditions. Samples were diluted four-fold with 1000 mg/L EDTA and centrifuged. LOD and LOQ were estimated as 3 and 10 mg/L, respectively. Evaluation of linearity (10 to 200 mg/L) showed good coefficients of correlation (r > 0.99). Recovery was assessed at 50, 100 and 200 mg/L of ascorbic and isoascorbic acids ranged from 100-107 and 105-106%, respectively. Precision (n=3) varied from 0.62 to 2.3% and 1.6 to 3.9% for ascorbic and isoascorbic acid, respectively. Validated method was used to analyze freshly squeezed orange juices and diverse commercial samples. Concentration of ascorbic acid ranged from 112 to 567 mg/L in fresh orange juice and from <LOQ to 304 mg/L in commercial samples. None samples had isoascorbic acid concentration above LOQ.

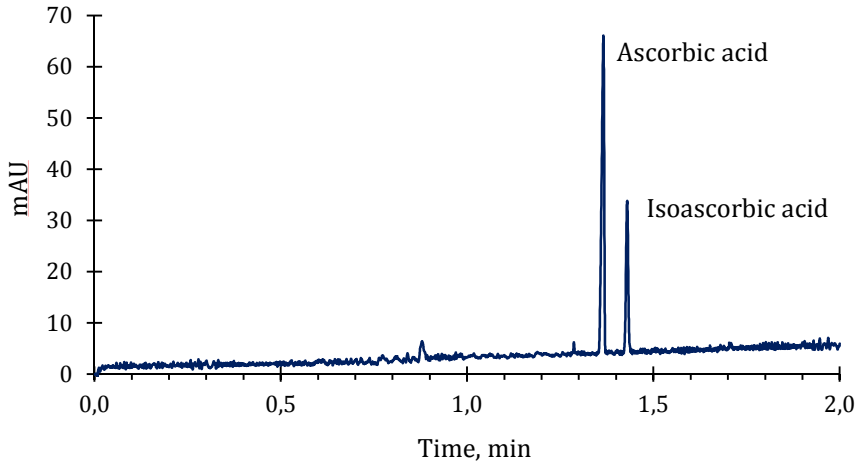

Figure 1. Fresh orange juice fortified with 150 mg/L isoascorbic acid. Conditions: Uncoated fused-silica capillary with 38.5 cm total length; Electrolyte: 20 mmol/L sodium tetraborate (pH 9.2); Injection: 50 mbar/3 s; Applied voltage:30 kV; Detection: UV, 270 nm.

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REFERENCES

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