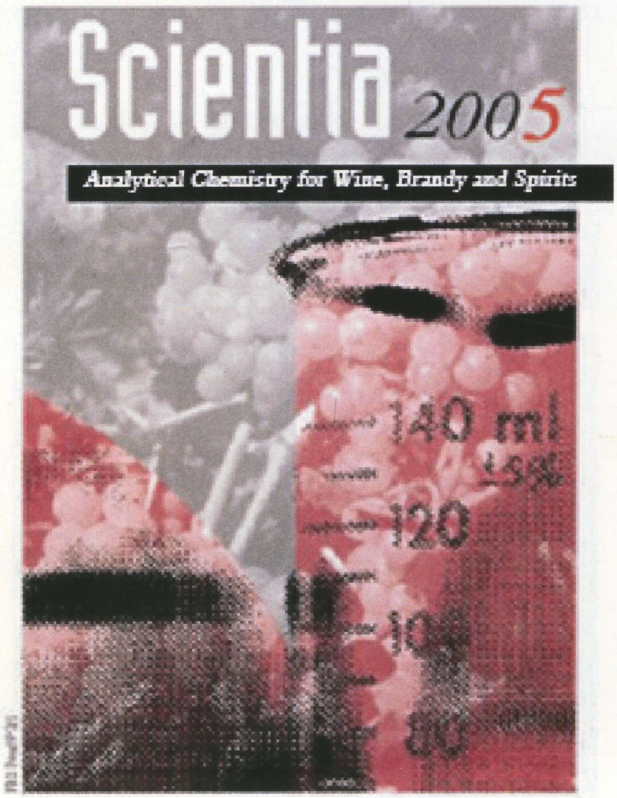
In Vino Analytica Scientia 2005



FECS Event n° 308

Montpellier (France)

7-9 July, 2005

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Poster 20

Quantitation of some free amines in grape juices at harvest

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The analysis of cadaverine, ethylamine, histamine, methylamine, putrescine, tyramine, tryptamine e 2-phenylethylamine was carried out by HPLC. Automatic pre-column derivatization with OPA solution (45 mg OPA; 200 µL 2-mercaptoethanol; 1 mL methanol; pH 10.5 buffer solution of Na tetraborate decahydrate 0.1 M up to final volume of 10 mL), gradient separation (eluent A: 0.05 M Na acetate buffer/tetrahydrofuran; 96/4 v/v; eluent B: methanol; flow 1 mL/min; column temperature 40°C) on a column Agilent Zorbax SB-Aq, 4.6 x 150 mm, 5µm, and fluorimetric detection (excitation at 336 nm; emission at 445 nm) were used. The quantitation limit (QL) of the method is 10 µg/L for all the quoted amines, excluded 2-phenylethylamine (20 µg/L).

The free amine content was quantified for 2 vintages in Chardonnay (total samples = 29), Pinot gris (14), Cabernet sauvignon (16) and Merlot (22) juices from ripe and sound grapes harvested at technological ripeness, as well as from grapes of red- (Lagrein, n=6; Marzemino, 6; Rebo, 5; Schiava, 6; Teroldego, 6) and white-fruited (Nosiola, 6) varieties native to Trentino in 2000.

Putrescine (median = 978 µg/L), methylamine (139 µg/L), ethylamine (110 µg/L), and histamine (74 µg/L) were in quantifiable amounts in all the 116 samples analysed. Cadaverine, 2-phenylethylamine and tyramine were in lower concentrations (few decades of micrograms per litre or less), being quantifiable only in the 79 %, 42 % and 28 % of the samples, respectively. Only 6 samples had tryptamine contents above the QL, ranging between 16 and 28 µg/L. The sum of the quantifiable amines had median of 1517 µg/L, ranging between 350 and 5302 µg/L, with 25° and 75° percentile of 1069 and 1913 µg/L, respectively.

Differences among varieties – Cabernet sauvignon showing a trend towards higher contents – and vintage years were observed, as well as some correlations between amines and acidity parameters, but need further research to be confirmed.

Acknowledgements:
The authors thank Provincia Autonoma di Trento and Consiglio Nazionale delle Ricerche, project PAT-CNR 2 "Analisi e ricerche per il sistema agroindustriale" for financial support.