5TH FIRMS NETWORK CONFERENCE

10 – 13 SEPTEMBER 2013
MONTREAL, CANADA

BOOK OF ABSTRACTS

Friday, 13th September, 2013

10:40 – 11:00

Using stable isotope ratios to check wine vinegar authenticity

---

M. Perini, M. Paloni, M. Simoni, M. Sacco and F. Camin - Fondazione Edmund Mach (Italy)
Presenting author:
Federica Camin – Federica.camin@fmach.it

According to the law, wine vinegar comes from the fermentation of fresh grape or must. Vinegar cannot contain acetic acid obtained by synthesis or from the fermentation of beet and cane sugar and cannot come from dried grapes diluted with water (the so-called 'raisin vinegar' produced in some Mediterranean countries). This is also valid for PGI Balsamic vinegar from Modena, a salad dressing today renowned all over the world, obtained by mixing wine vinegar and grape must.

In the case of wine, since 1991 the fraudulent addition of water, cane and beet sugar has been detected by analysing D/H and $^{13}C/^{12}C$ in ethanol and $^{18}O/^{16}O$ in water and by comparing the results with those in an official databank. In the case of vinegar, studies about the application of these techniques to balsamic vinegar and an official vinegar databank are lacking.

In this work we considered fifteen different production chains (wine, wine vinegar, must and balsamic vinegar) and two chains with adulterated wines (addition of beet and cane sugar).
The isotopic ratios did not change during acetic fermentation and along the production chain, demonstrating that the methods can also be adopted for balsamic vinegar and that the wine databank can also be used as a reference for vinegar.