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ABSTRACT BOOK

INFORMATION

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The Forum on Microcolumn Separations

VOLATILE SECONDARY METABOLITES FROM ORGANIC APPLES BY HS-SPME IN COMBINATION WITH COMPREHENSIVE TWO-DIMENSIONAL GC-MS

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Trentino Alto Adige is a small region in northern Italy that produces about 1.5 M of tons of apples per year corresponding to about 15% of total EU production [1]. The high production density brings a burden for soil exploitation. In the last decade efforts have been done to make apple production more eco-sustainable by adopting organic farming practices. Organic farming is a production system which avoids or excludes the use of synthetic preparations – artificial fertilizers, pesticides, growth accelerators and fodder additives [2]. Furthermore, recent works showed a positive willingness to purchase organic apples and consumer preference for apples organically rather than conventionally produced [3-5] providing important information about market opportunities. Despite this, many producers are afraid about lower sensory quality of organic fruits. Instrumental and sensory analyses were applied to investigate the impact of organic farming on apple quality. Fruits from several apple varieties grown, in different parcels of the same field, using organic and integrated production systems were compared. Here we present preliminary data on volatile secondary metabolites obtained by HS-SPME in combination with comprehensive two-dimensional gas chromatography coupled to a quadrupole MS (HS-SPME GCxGC-MS). Data analysis of the 63 most abundant identified peaks shows statistical significant differences in volatile secondary metabolites emitted by apples grown under organic production compared to the traditional one. Fig 1 shows separation of the 2 theses (bio: Organic farming; trad: integrated production system). For example apples grown under organic practice emit more α -farnesene than conventionally produced fruits.

References

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