



fondazione banfi

SANGUIS JOVIS
ALTA SCUOLA DEL SANGIOVESE

Conoscenza e valorizzazione del
patrimonio aromatico del Sangiovese

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Università di Pisa



responsive theme

Partecipazione diretta, inserimento e gestione propri dati

News

Nuova versione adatta anche a tablets e smartphones.

Partecipanti

Vitis Database Working Group

Contatti

Amministratore

Links

Altri database viticoli



SANGUIS IONIS

www.vitisdb.it

it.grapedb.org



Italian Vitis Database

VitisDB ▼

varietà ▼

descrittori

bibliografia

elenco delle varietà

cerca

cerca per profilo microsatellite

cerca per profilo microsatellite standardizzato

cerca per descrittori ampelografici

cerca per descrittori ampelometrici



Varietà

[Home](#) / [varietà](#)
 ▾ escludi i sinonimi

Sono state trovate **96** corrispondenze, mostrate dalla 1 alla 20.

← 1 2 3 4 5 →

nome	codice	specie	sottospecie	vitigno da	Colore buccia	Aroma acino	submitter
Abrusco (sinonimo di Colorino)	vitisdb-var_11	Vitis vinifera	sativa	vino	blu nero	nessuna	ITA419
Agostenga (sinonimo di Prié blanc)	non disponibile	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA360
Albarola	non disponibile	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA360
Albarola trebbiana (sinonimo di Albarola)	non disponibile	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA360
Aleatico	vitisdb-var_7	Vitis vinifera	sativa	vino	blu nero	aroma moscato	ITA419
Ansonica	vitisdb-var_8	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA419
Ansonia (sinonimo di Ansonica)	vitisdb-var_8	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA419
Anzonaka (sinonimo di Ansonica)	vitisdb-var_8	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA419
Arneis	non disponibile	Vitis vinifera	sativa	vino	verde giallo	nessuna	ITA360
Balsamina (o Balsamea) (sinonimo di Uva rara)	non disponibile	Vitis vinifera	sativa	vino	blu nero	nessuna	ITA360
Barbera	non disponibile	Vitis vinifera	sativa	vino	blu nero	nessuna	ITA360



profilo microsatellite standardizzato

loci:	loci predefiniti (9)																altri loci (8)									
locus SSR:	VWS2		VWMD5		VWMD7		VWMD27		VrZAG82		VrZAG79		VWMD25		VWMD28		VWMD32		VMC1b11		VWMD17		VWMD21		VWMD24	
allele:	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2	A1	A2
dimensione:	131	131	225	235	238	262	175	181	192	194	243	259	242	242	235	245	253	257	166	166	212	222	242	248	209	215

[confronta con tutte le accessioni standardizzate](#)

immagini



germoglio



germoglio pagina superiore



germoglio pagina inferiore



gemma



foglia



foglia pagina superiore



foglia pagina inferiore



seno peziolare



grappolo



acino



vinacciolo





Sangiovese (clone CCL 2000/1) - 71: ampelografia

[Home](#) [accessions](#) [Sangiovese \(clone CCL 2000/1\)](#) / [ampelography](#)
[general info](#) [ampelography](#) [ampelometry](#) [phenology & production](#) [vegetative-productive](#) [berry polyphenols](#) [berry aroma](#) [other descr.](#) [trueness to type](#)

state: public - release: 29/06/2015

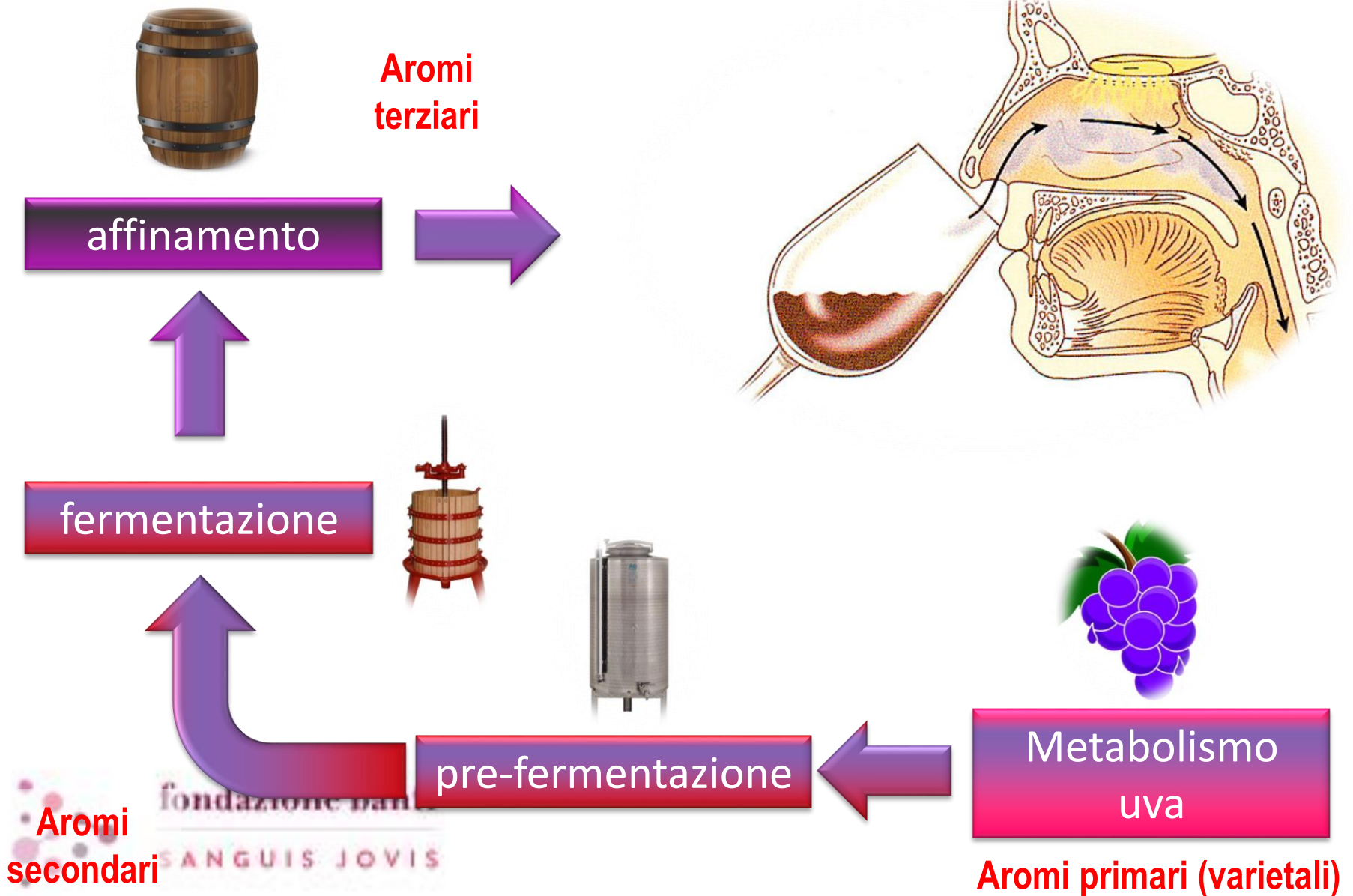
OIV	PDF	description	value	
001		Young shoot: opening of the shoot tip	5	fully open
003		Young Shoot: intensity of anthocyanin coloration on prostrate hairs of tip	1	none or very low
004		Young Shoot: density of prostrate hairs on tip	5	medium
006		Shoot: attitude (before tying)	3	semi-erect
007		Shoot: color of dorsal side of internodes	1	green
008		Shoot: color of ventral side of internodes	1	green
016		Shoot: number of consecutive tendrils	1	2 or less
051		Young leaf: color of the upper side of blade (4 th leaf)	1 / 2	green / yellow
053		Young leaf: density of prostrate hairs between main veins on lower side of blade (4th leaf)	5 (3)	medium
067		Mature leaf: shape of blade	3	pentagonal
068		Mature leaf: number of lobes	3	five
070		Mature leaf: area of anthocyanin coloration of main veins on upper side of blade	1	absent
072		Mature leaf: goffering of blade	1	absent or very weak
074		Mature leaf: profile of blade in cross section	1	flat
075		Mature leaf: blistering of upper side of blade	1 / 3	absent or very weak / weak
076		Mature leaf: shape of teeth	2 / 4	both sides straight / one side concave, one side convex
079		Mature leaf: degree of opening / overlapping of petiole sinus	3	open
080		Mature leaf: shape of base of petiole sinus	1	U-shaped
081-1		Mature leaf: teeth in the petiole sinus	1	none
081-2		Mature leaf: petiole sinus base limited by veins	1	not limited
083-2		Mature leaf: teeth in the upper lateral sinuses	1	none
084		Mature leaf: density of prostrate hairs between the main veins on lower side of blade	3	low

RUOLO DEGLI AROMI NEL POTENZIALE TECNOLOGICO DEI VITIGNI

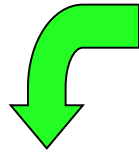
- gli aromi contribuiscono fortemente a definire i caratteri di **tipicità dei vini**
- alcuni componenti della frazione aromatica possono essere **markers di tecnologia** e conservazione del vino e svolgere un importante ruolo nella **rintracciabilità dell'autenticità**
- gli studi sui profili aromatici delle uve possono contribuire a **valorizzare i vitigni minori**



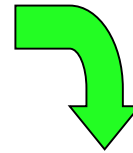
AROMI DEI VINI



AROMI DELLE UVE (VARIETALI)



AROMI



in forma libera

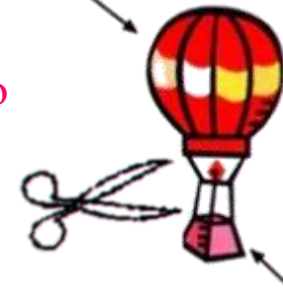
aroma



in forma legata (**precursori d'aroma**), principalmente come glicosidi inodori (**eterosidi**)

l'aroma può essere liberato dalla zavorra per azione di enzimi o per idrolisi chimica

aroma

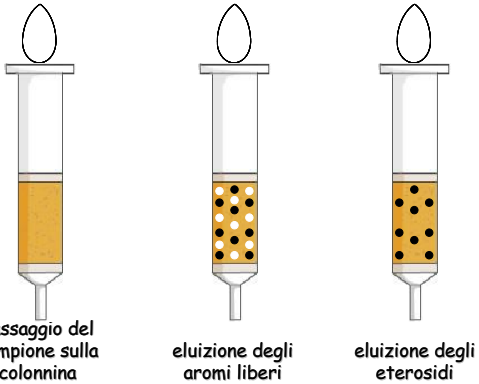


zucchero

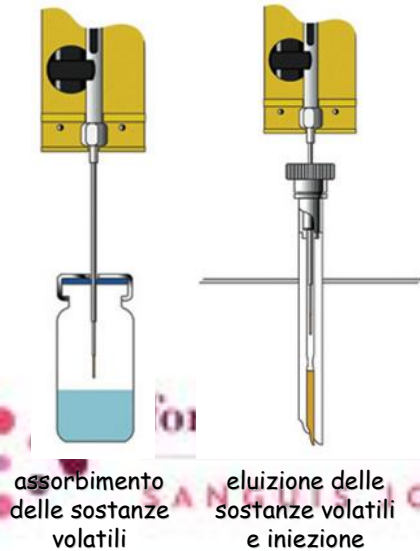
- uve “aromatiche”: aromi liberi in concentrazione superiore alla soglia di percezione
- uve “non aromatiche”: aromi liberi in concentrazione inferiore alla soglia di percezione

Estrazione e analisi aroma uve

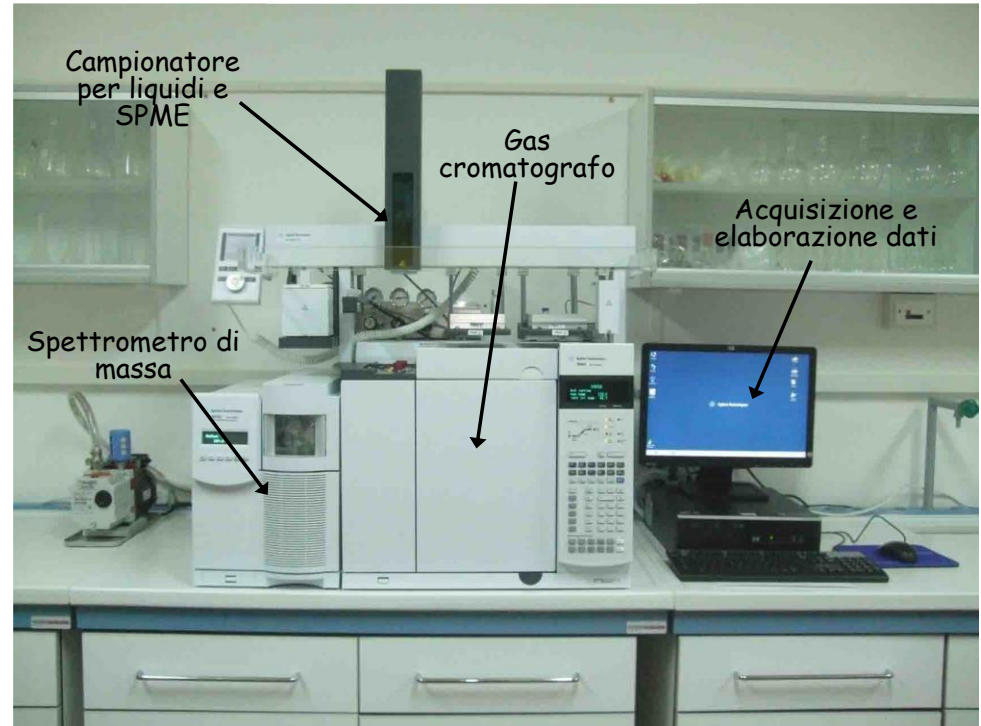
SPE solid phase extraction



SPME solid phase micro extraction



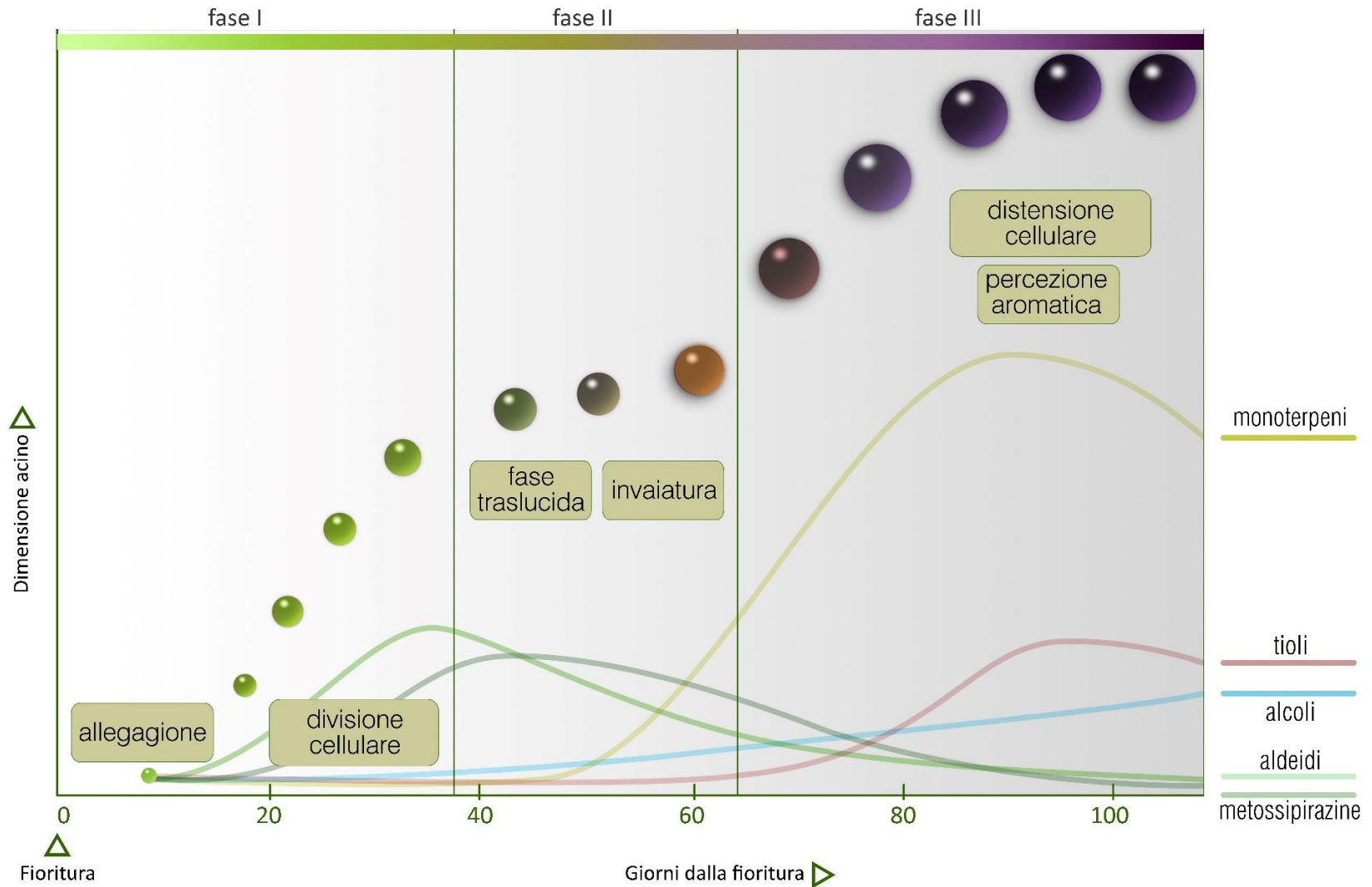
GC-MS analysis



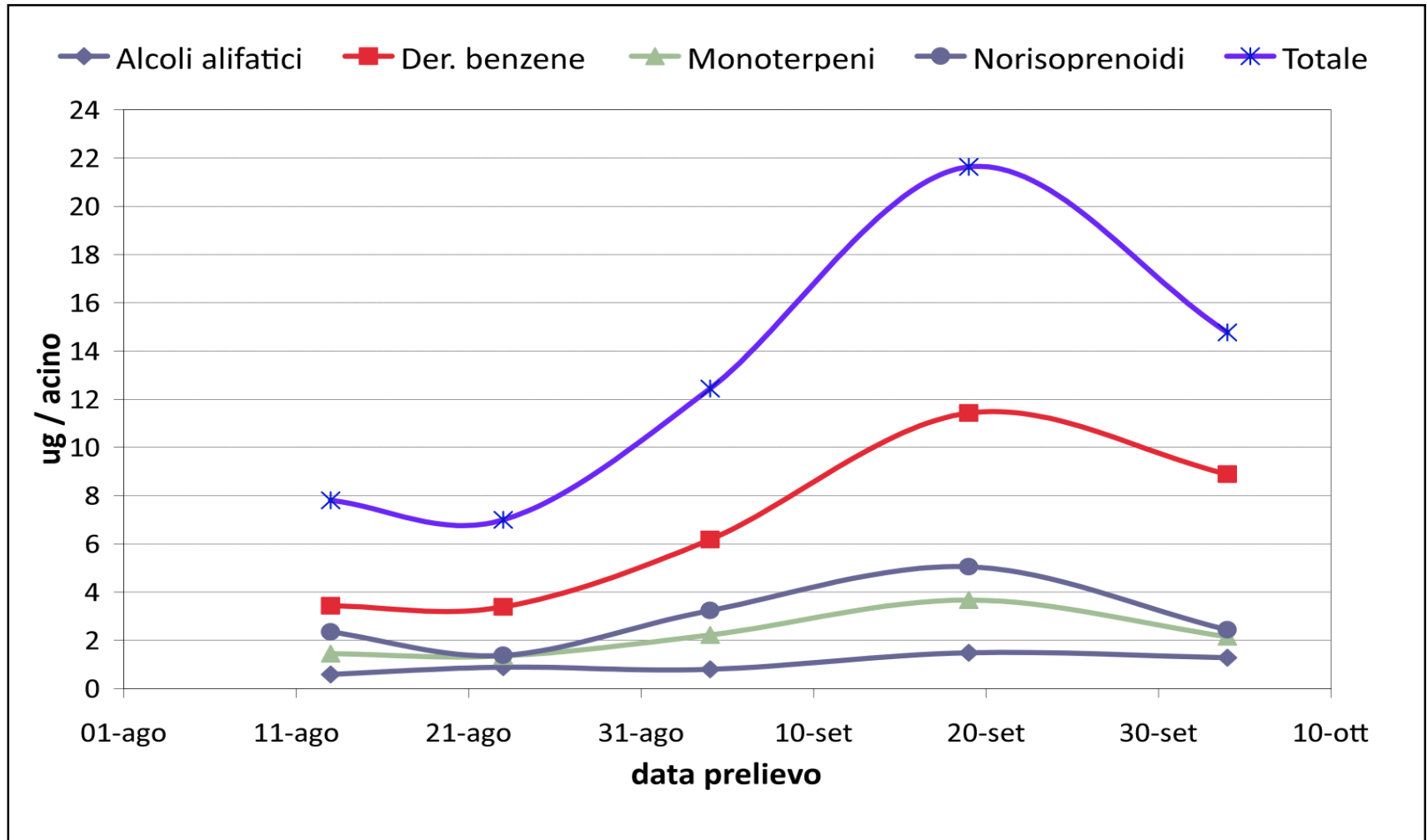
AROMI DELLE UVE (VARIETALI)



accumulo aromi nel corso dello sviluppo dell'acino



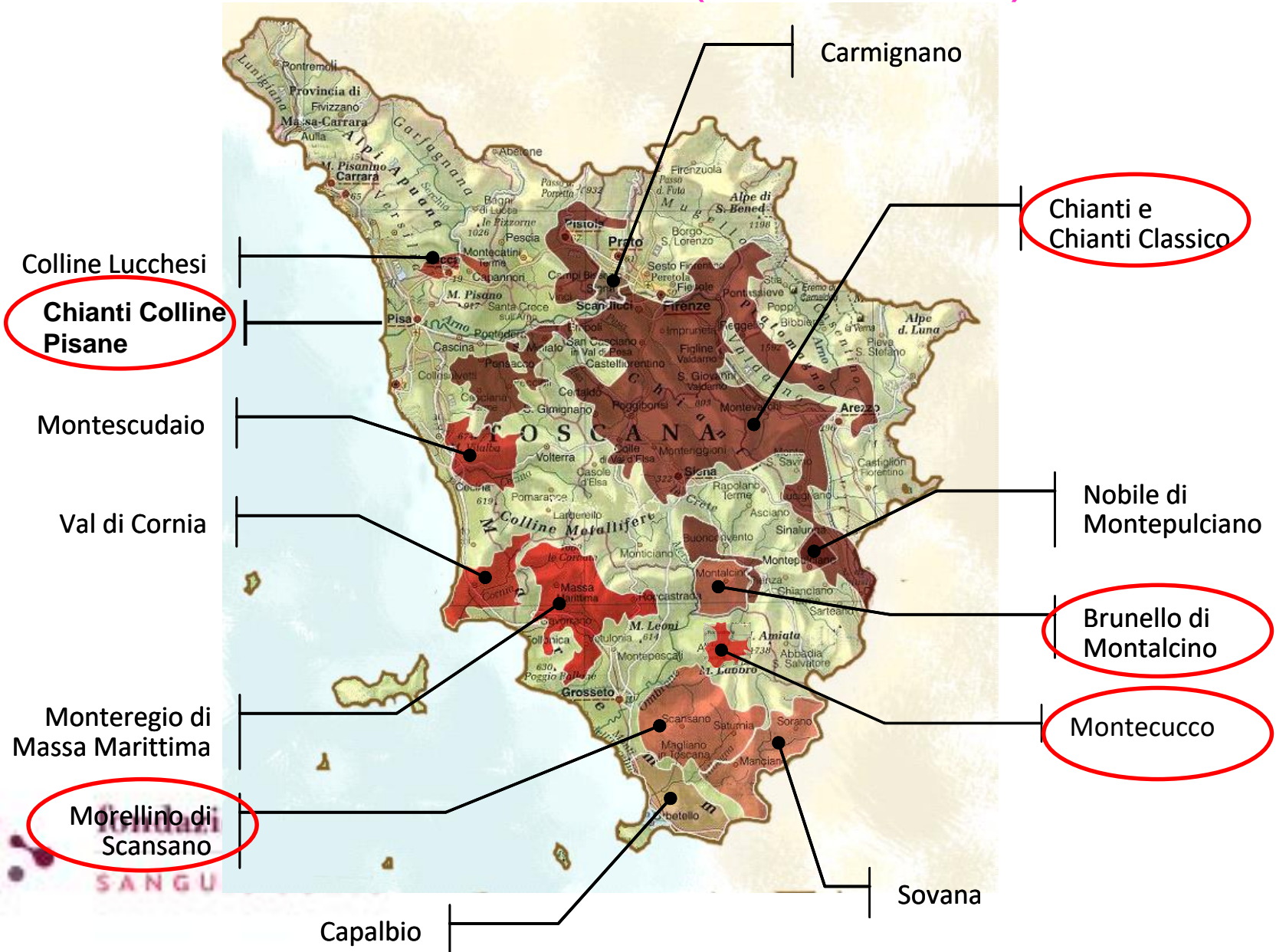
Andamento aroma nel corso della maturazione delle uve di Sangiovese in Toscana



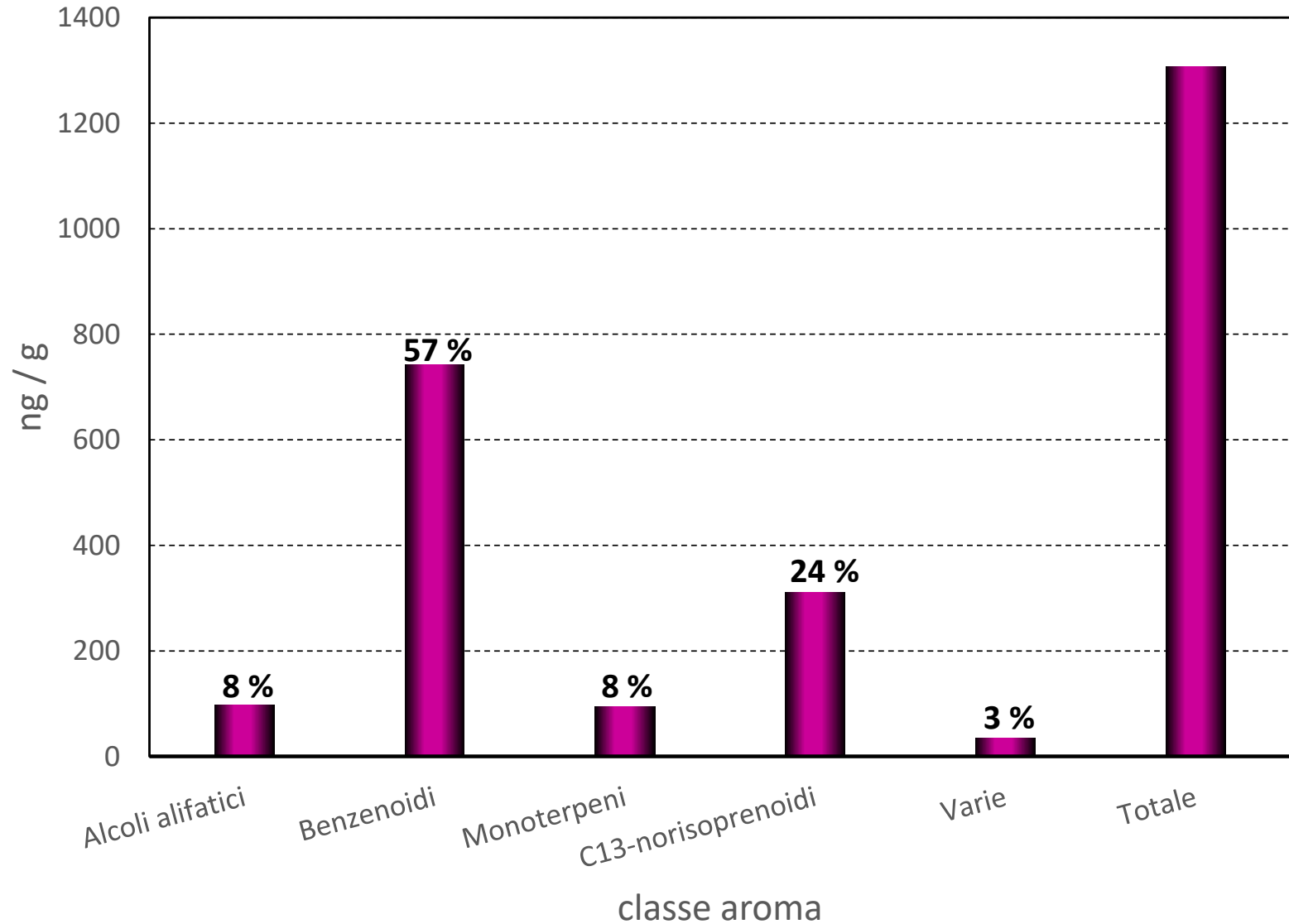
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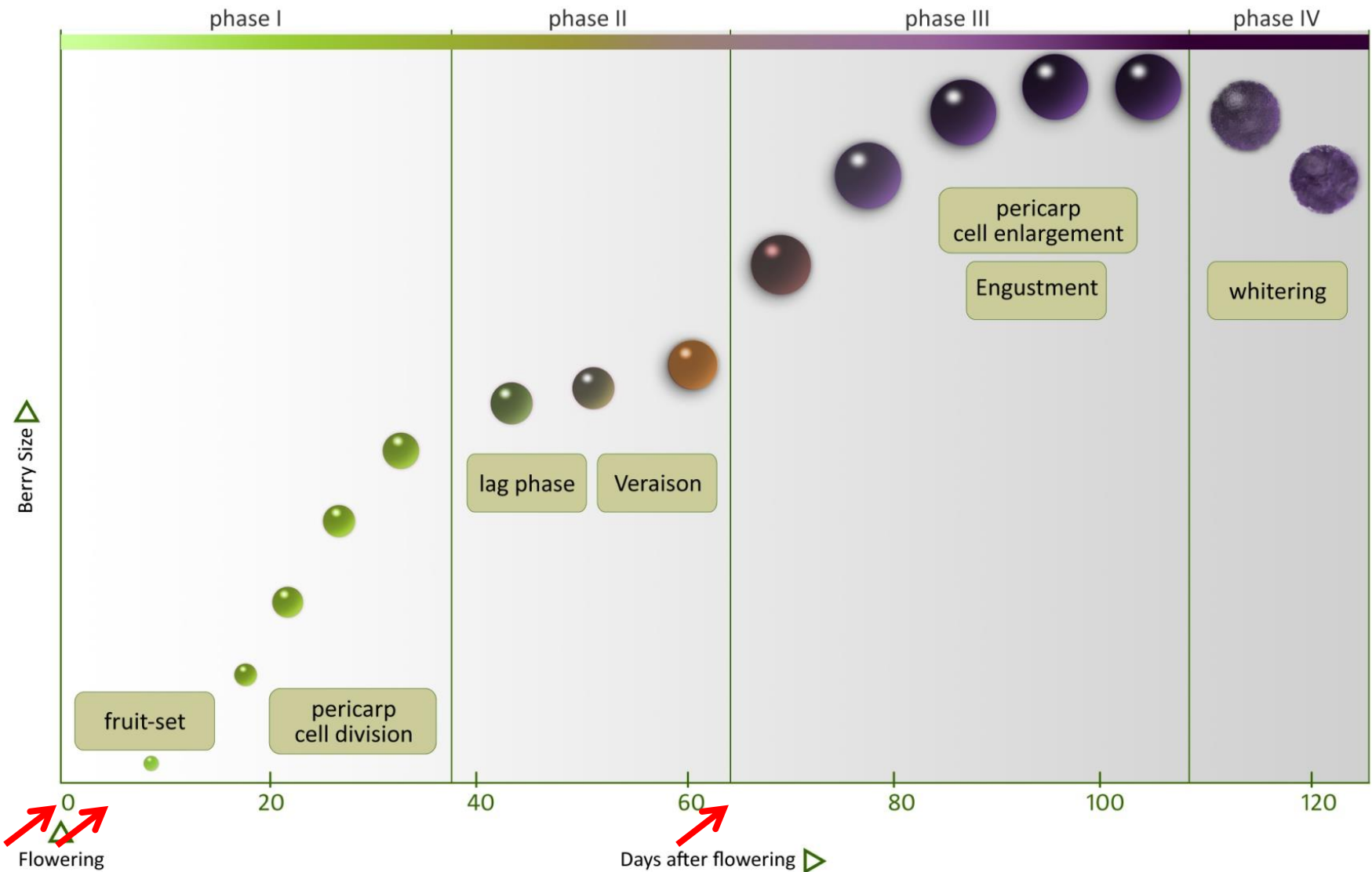
Aromi delle uve Sangiovese in Toscana: zone esaminate (2009-2011)



Aromi uve del Sangiovese in Toscana: profilo medio



DEFOGLIAZIONE E AROMI



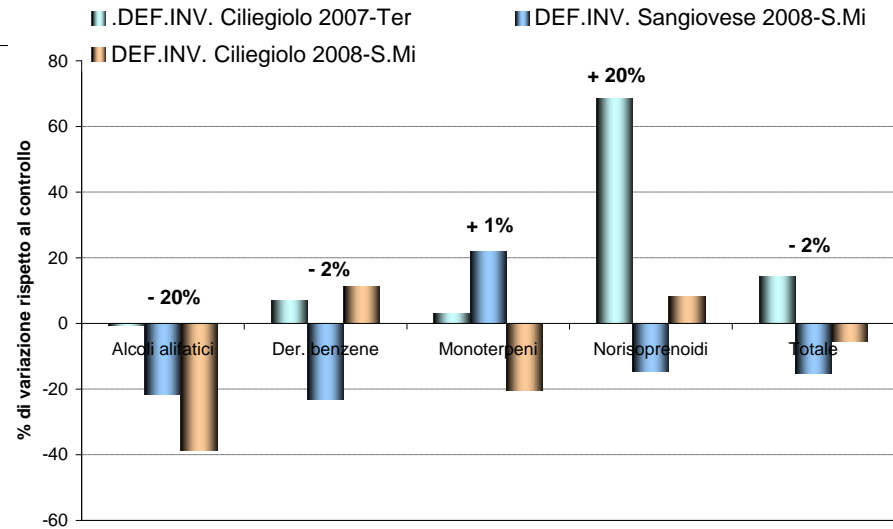
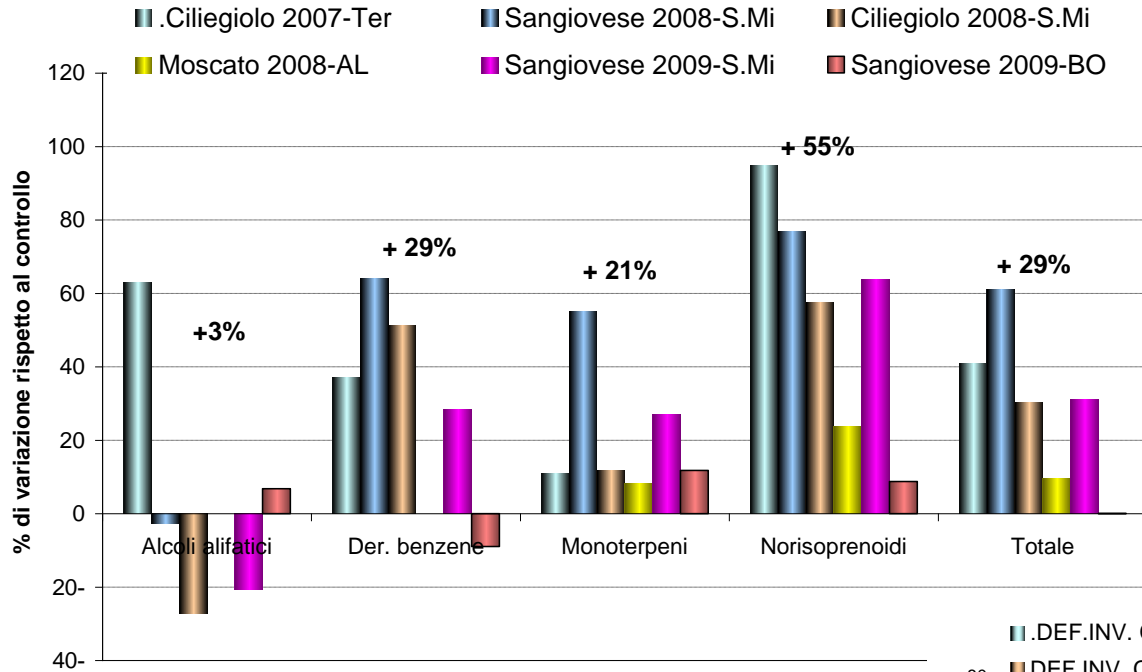
D'Onofrio C., 2013. Changes of berry volatile compounds during withering. In 'Sweet, reinforced and fortified wines: grape biochemistry, technology and vinification'. (Eds F Mencarelli, P Tonutti) pp. 91–103.

DEFOGLIAZIONE e AROMI UVE



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Confronti percentuali

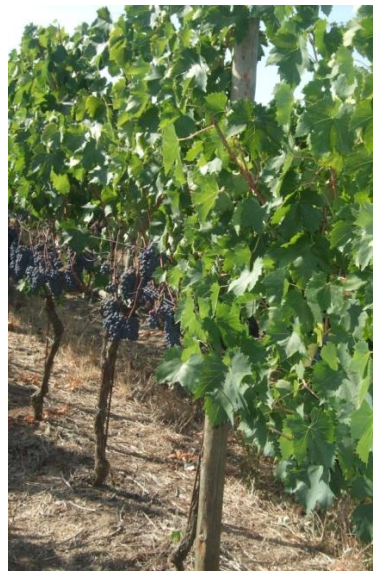


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DEFOGLIAZIONE –Temperature e PAR



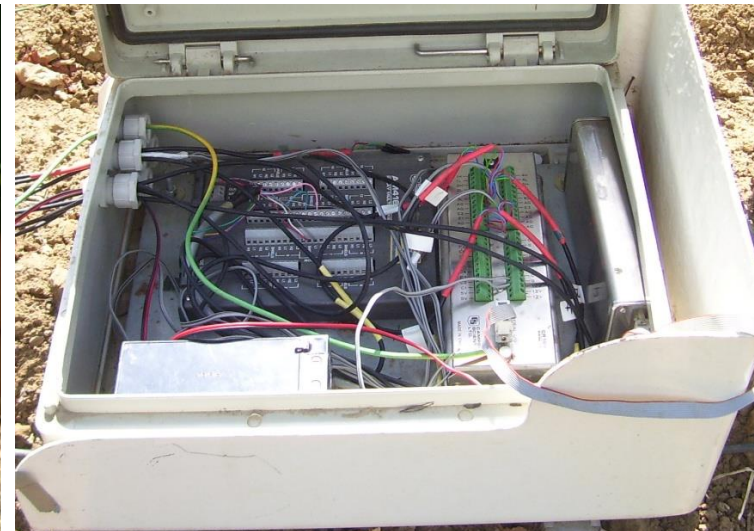
DEF precoce



CTRL/DEF



DEF/ombreggiato

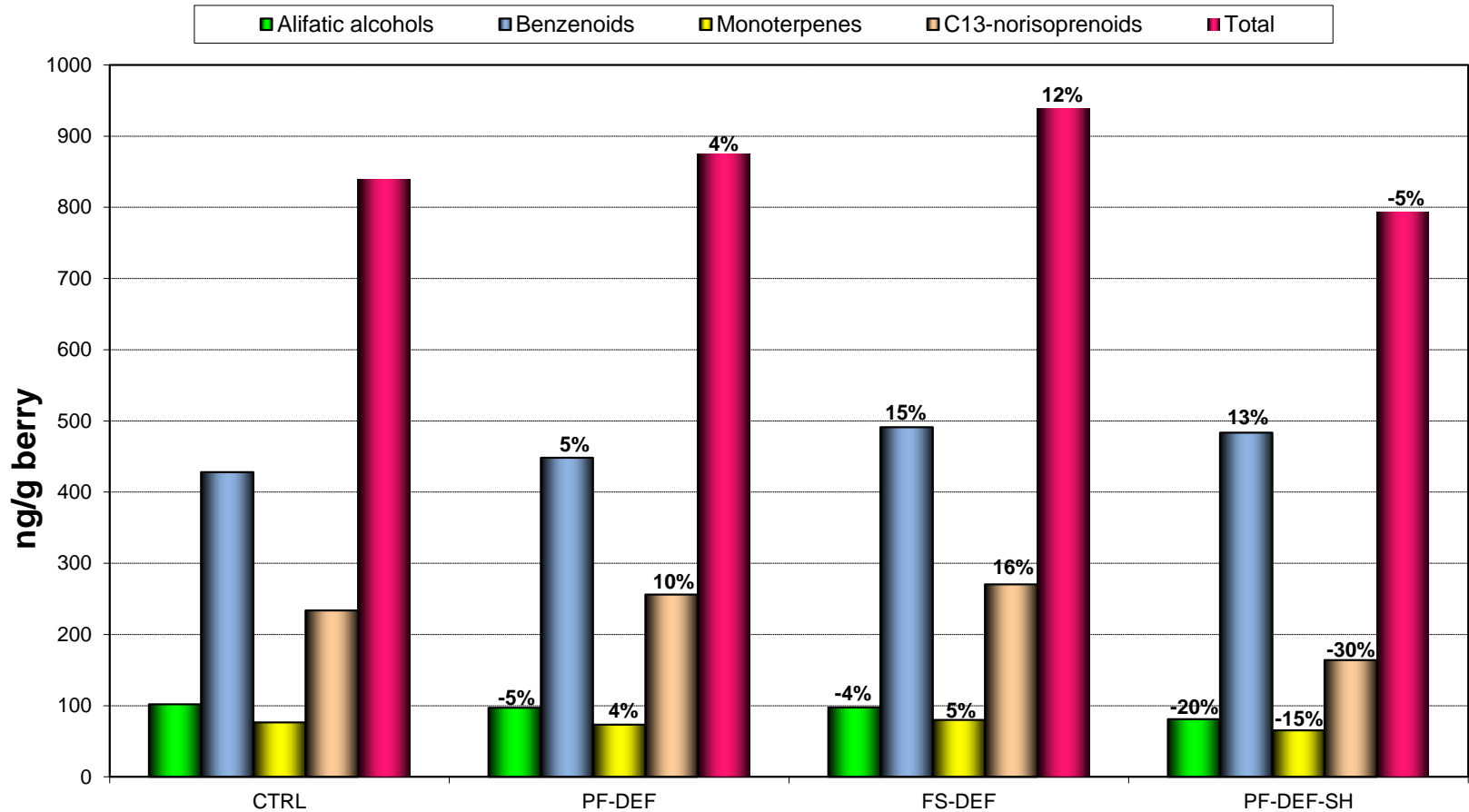


Sangiovese 2011 (Suvereto)

WINKLER: 2220; t max ac.: CTRL 40 °C, DEF 46 °C Δt: 6 °C

Controllo SFT: 5.90 m²/pi
 PMA: 2.12 g PMG: 340 g Prod.:
 4.75 kg/pi SFT/Prod.: 1.24m²/kg
 ° Brix: 21.9 AT: 6.49

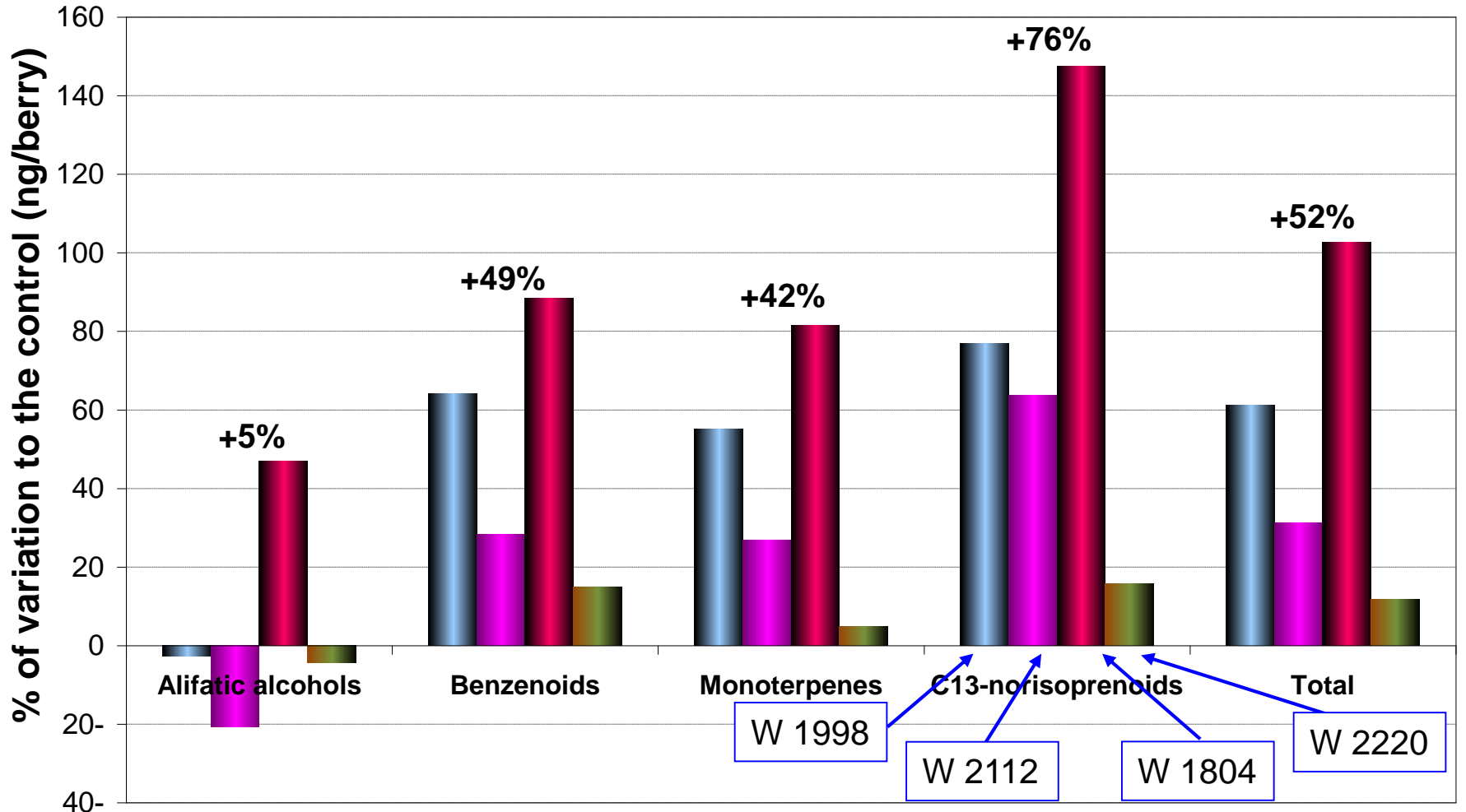
DEF-ALL. SFT: 4.30 m²/pi PMA: 1.85 g
 PMG: 296 g Prod.: 4.14 kg/pi
 SFT/Prod.: 1.03 m²/kg
 ° Brix: 21.0 AT: 7.16



DEFOGLIAZIONE PRECOCE

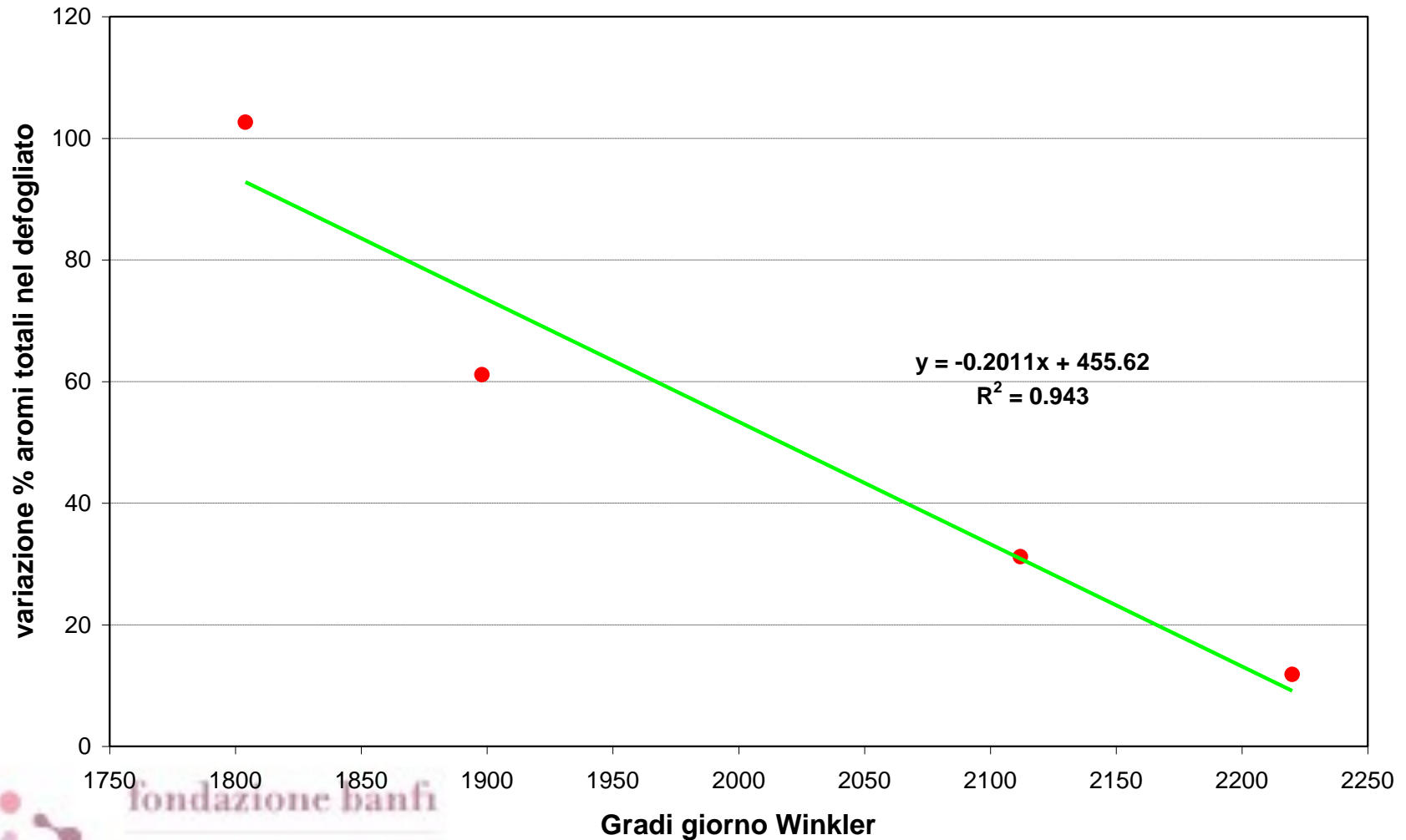
effetti sulle varie classi di aromi

■ Sangiovese 2008-PI ■ Sangiovese 2009-PI ■ Sangiovese 2010-PI ■ Sangiovese 2011-LI

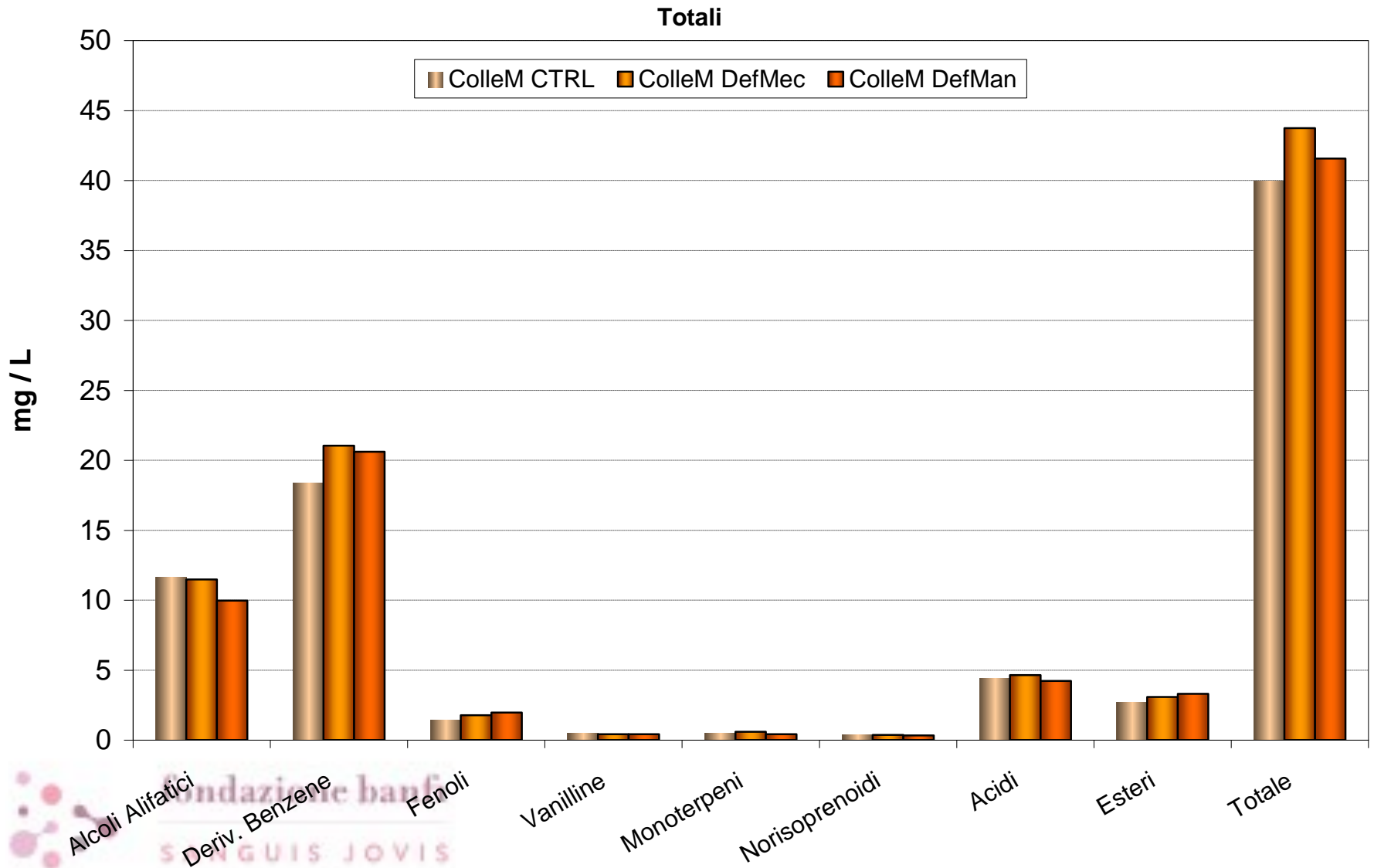


DEFOGLIAZIONE PRECOCE

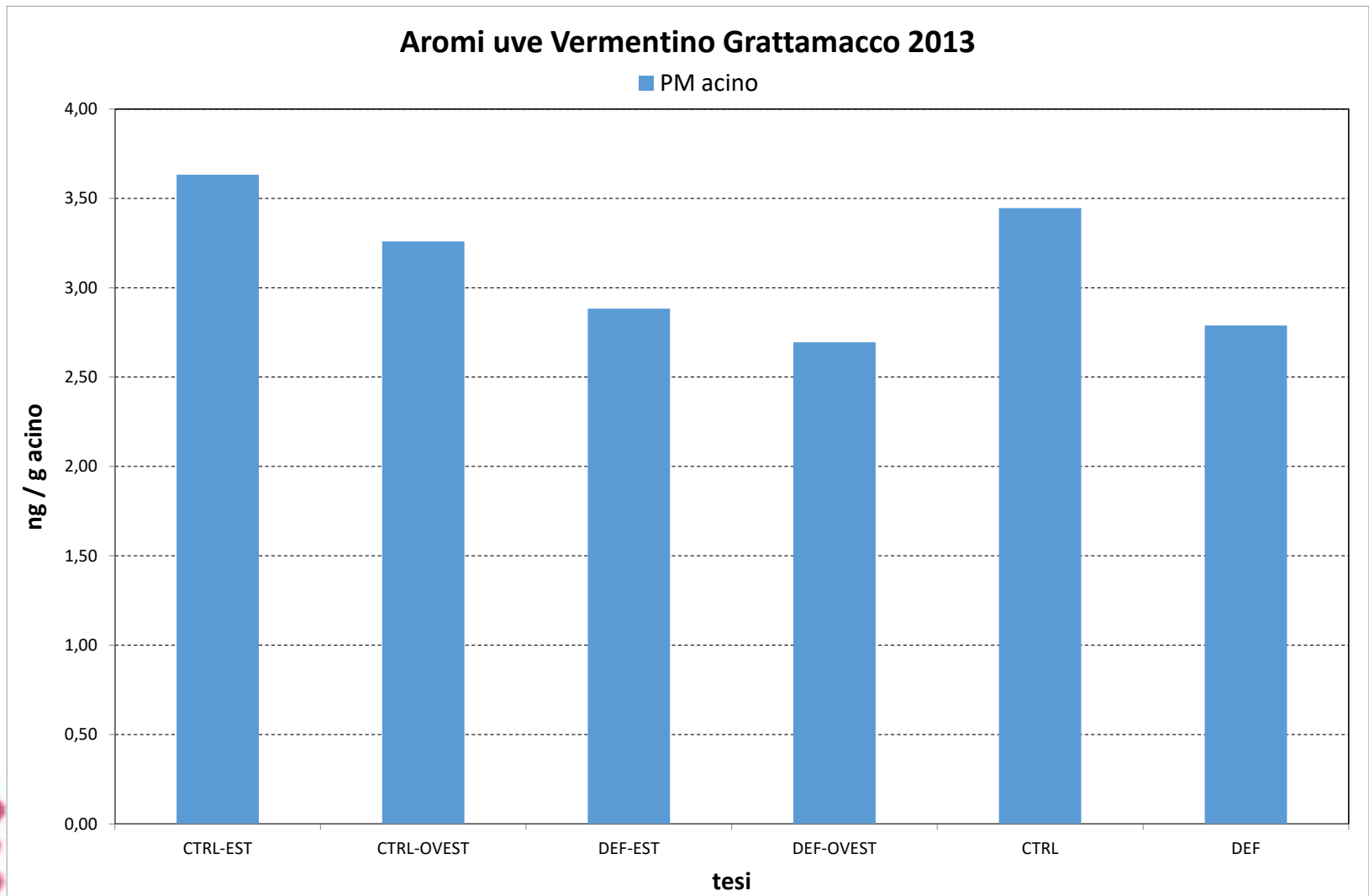
correlazione con i gradi giorni di Winkler



Aromi Vini Vermentino 2012



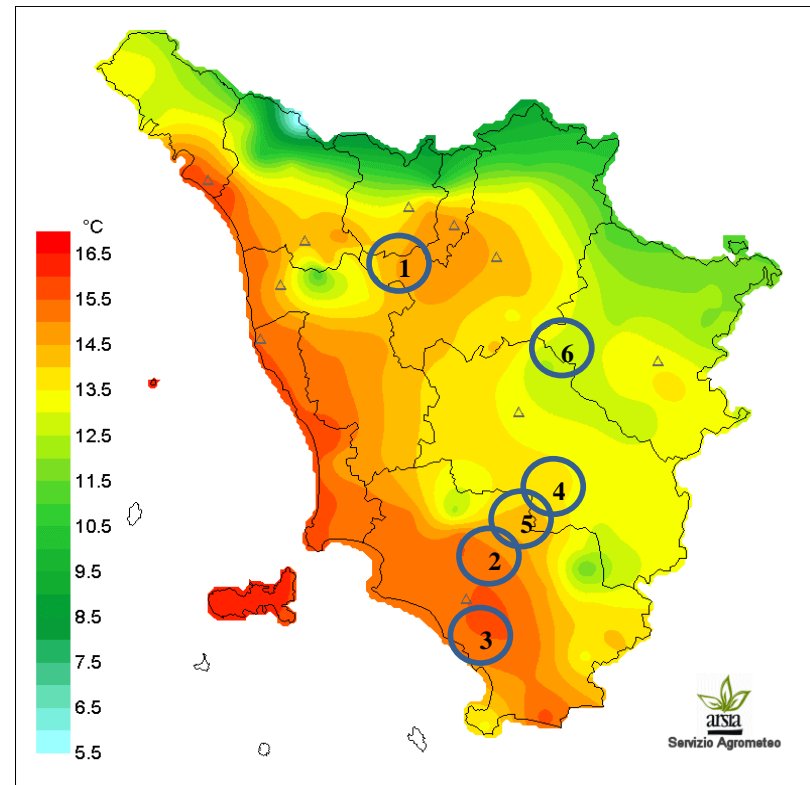
Aromi Uve Vermentino 2013 (totale)



Tesi	Cod.	Azienda - Vigneto	Denominazione d'Origine	Comune	Prov.	Sito
1	CCP 1	Beconcini	Chianti Colline Pisane	S. Miniato	Pi	1
2	MC 1	ColleMassari Campo La Mora F9	Montecucco	Cinigiano	Gr	2
3	MC 2	ColleMassari Campo sal.	“	Cinigiano	Gr	2
4	MC 3	ColleMassari Cerrete	“	Cinigiano	Gr	2
5	MC 4	ColleMassari Orto del Prete	“	Cinigiano	Gr	2
6	MC 5	ColleMassari Vigna Vecchia	“	Cinigiano	Gr	2
7	MC 6	Salustri	“	Cinigiano	Gr	3
8	MS 1	Fattoria di Magliano	Morellino Scansano	Magliano	Gr	4
9	BM 1	Col D'Orcia	Brunello di Montalcino	Montalcino	Si	5
10	BM 2	Col D'Orcia	“	Montalcino	Si	5
11	BM 3	Col D'Orcia	“	Montalcino	Si	5
12	BM 4	Col D'Orcia	“	Montalcino	Si	5
13	BM 5	Col D'Orcia	“	Montalcino	Si	5
14	BM 6	Casanova Di Neri	“	Montalcino	Si	5
15	BM 7	La Mannella Terra Bianca	“	Montalcino	Si	6
16	CC 1	Capannelle	Chianti Classico	Gaiole	Si	7
17	CC 2	Castello di Albola	“	Radda	Si	8

Clima in Toscana: temperature medie 2009-2011

- 1. San Miniato
- 2. Cinigiano
- 3. Magliano
- 4. Montalcino
- 5. Montalcino (Argiano)
- 6. Gaiole



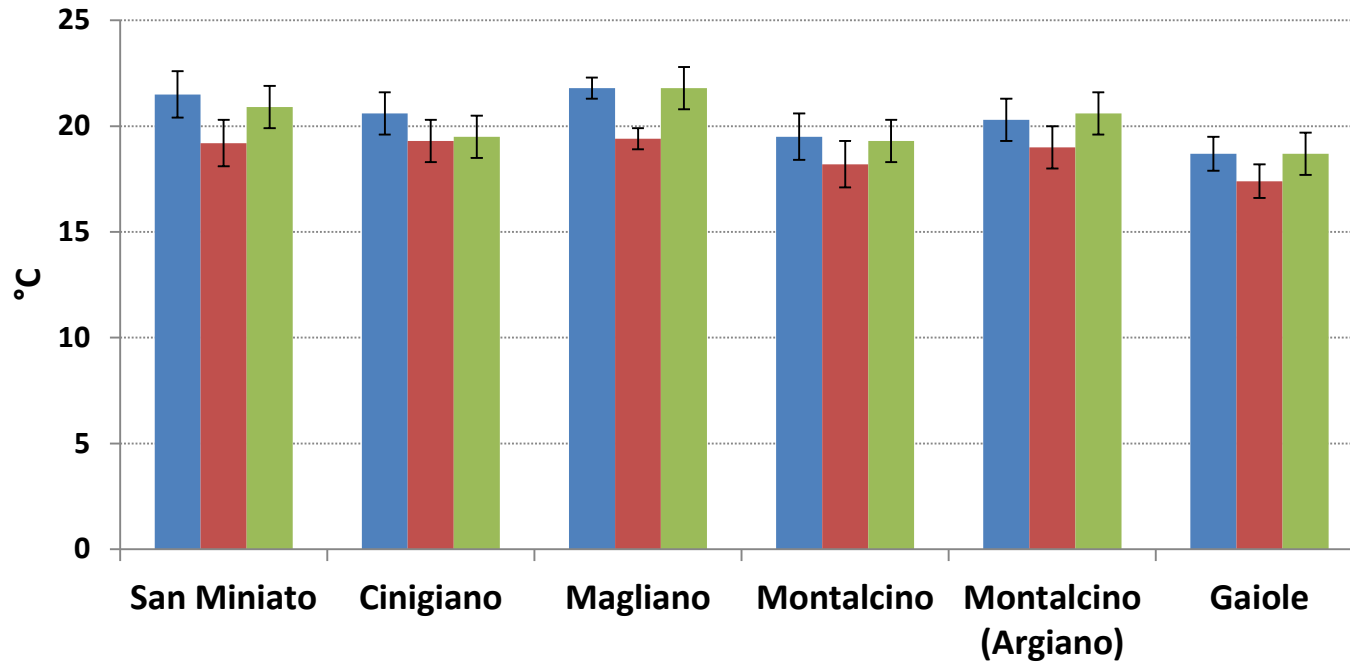
n	Stazione	Temp max (°C)	Temp min (°C)	Temp media (°C)	Daily excursion (°C)	Rainfall (mm)
1	San Miniato	25,6	14,0	20,5	11,6	290
2	Cinigiano*	25,1	14,2	19,8	10,9	326
3	Magliano	25,7	15,2	21,0	10,5	286
4	Montalcino	23,4	13,9	19,0	9,5	376
5	Montalcino**	25,0	13,2	20,0	11,8	349
6	Gaiole	25,5	9,3	18,3	16,2	335

* Poggi del Sasso

** Argiano



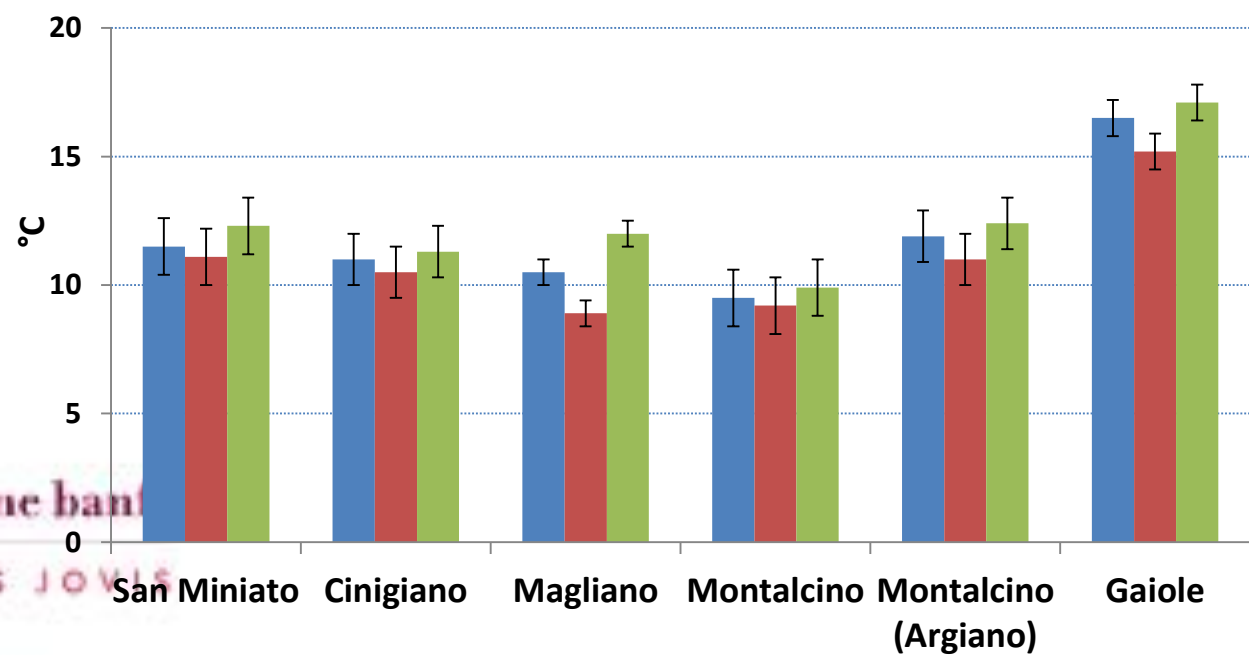
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T. media

- 2009
- 2010
- 2011

Escursione
termica
giornaliera



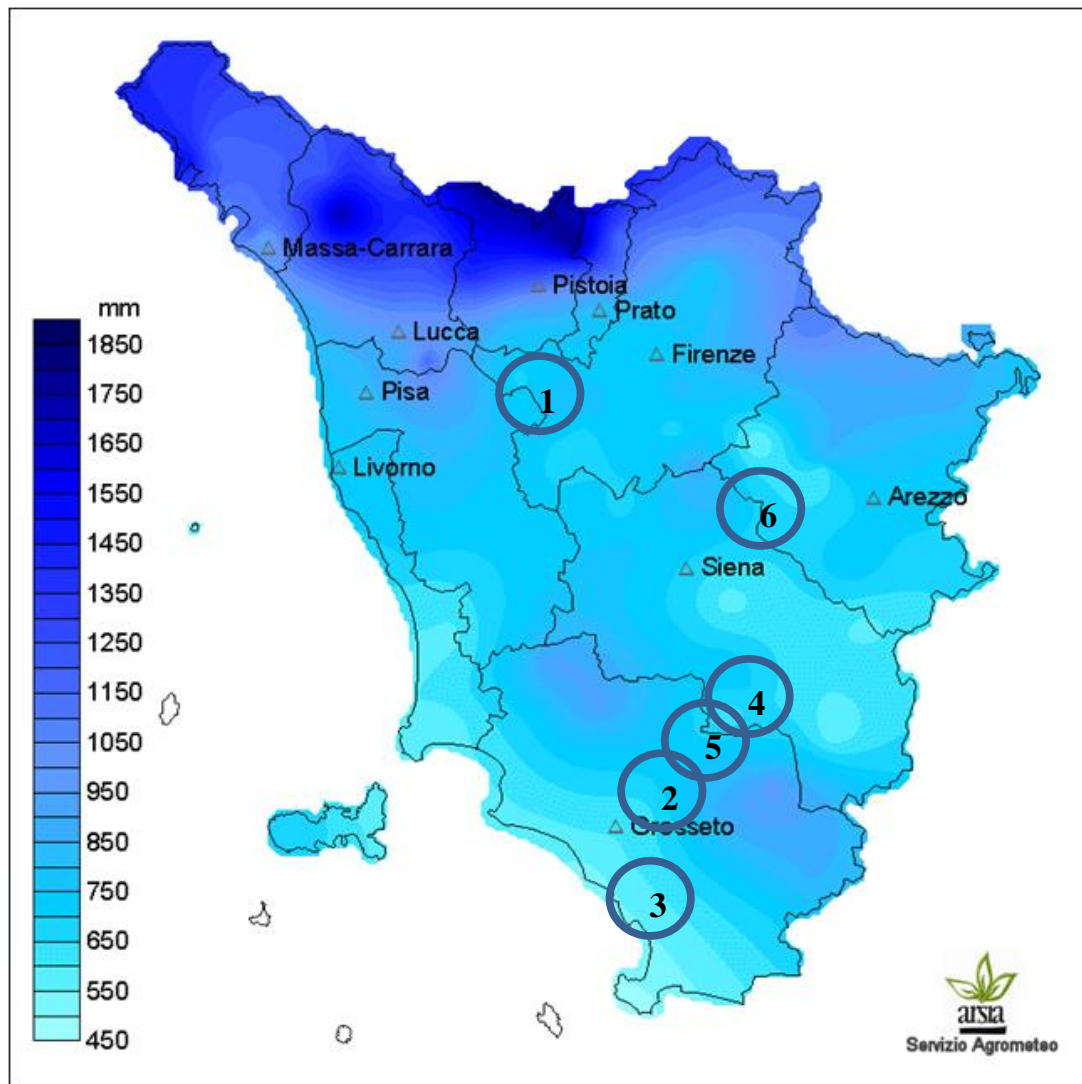
- 2009
- 2010
- 2011



fondazione ban
SANGUIS JOVIS

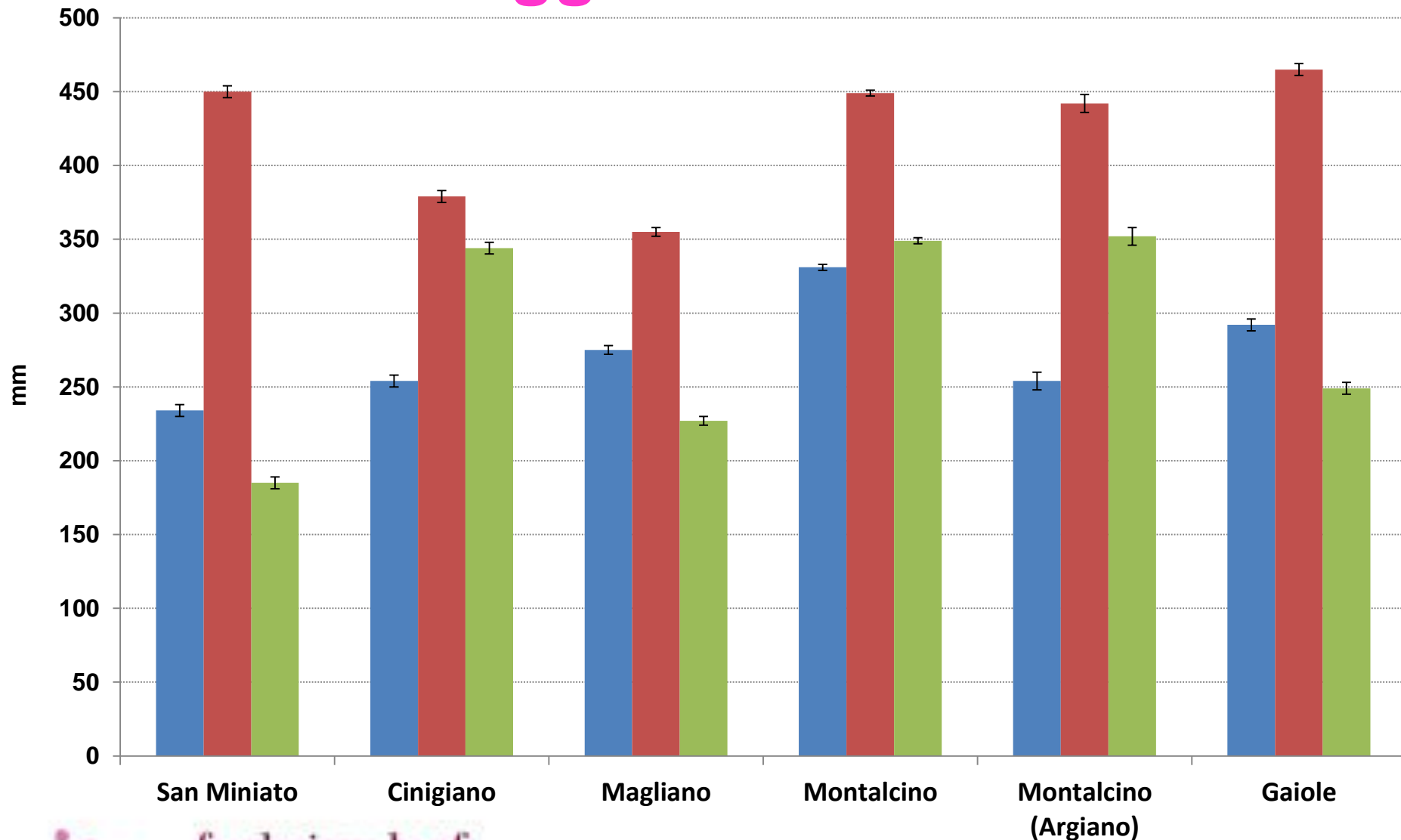
Piogge: 2009-2011

-  1. San Miniato
-  2. Cinigiano
-  3. Magliano
-  4. Montalcino
-  5. Montalcino (Argiano)
-  6. Gaiole



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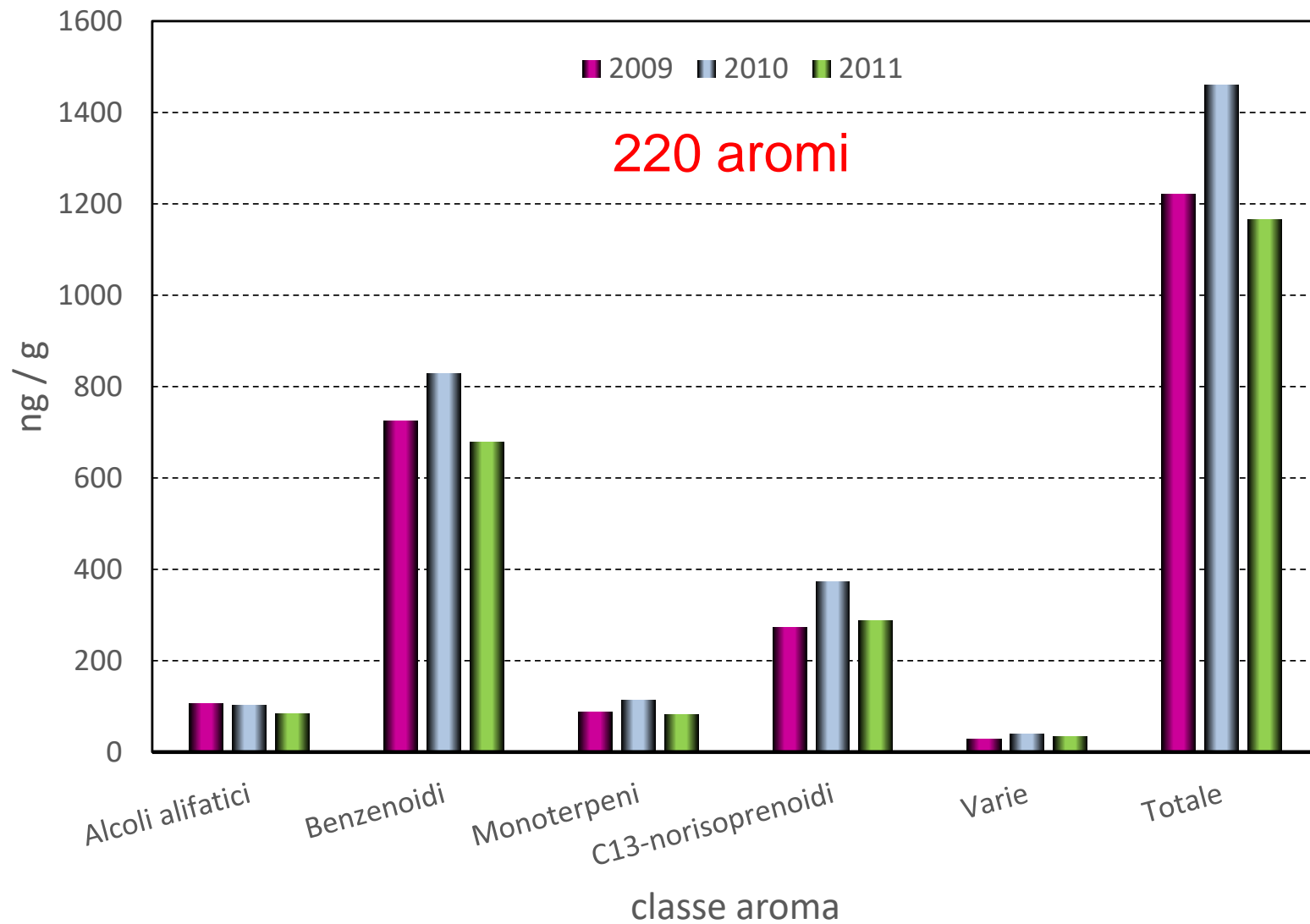
Pioggie: 2009-2011



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■ 2009 ■ 2010 ■ 2011

Aromi uve del Sangiovese in Toscana: profilo medio



Aromi uve del Sangiovese in Toscana: variabilità spiegata

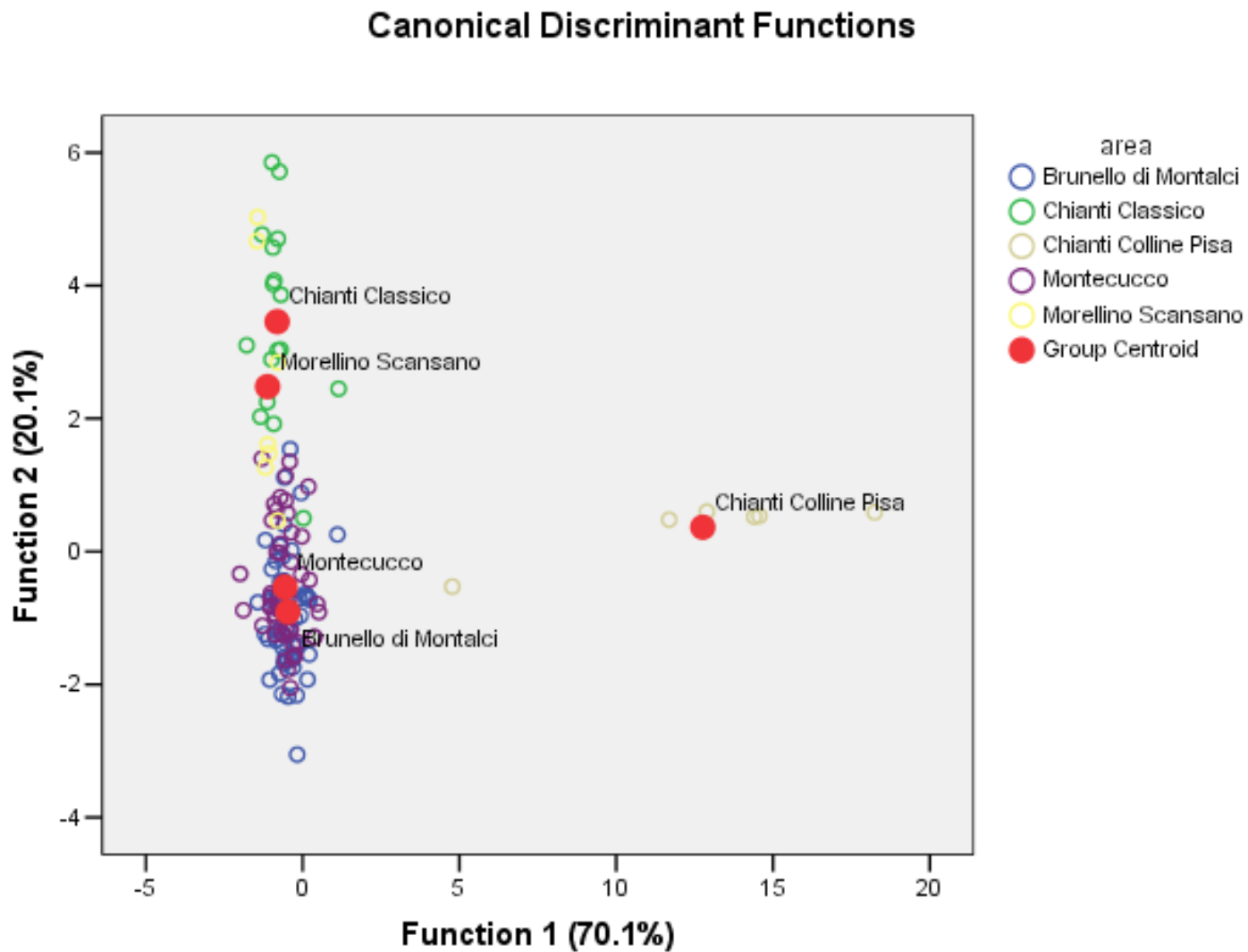
Variabile	area	anno	area x anno	errore
Composti liberati per via enzimatica	%	%	%	%
Alcoli alifatici	74,53	1,75	19,01	4,72
Derivati del benzene	51,86	37,56	9,29	1,28
Fenoli	44,97	11,84	38,87	4,32
Vanilline	66,23	18,95	11,43	3,38
Monoterpeni	52,83	20,05	18,81	8,31
Norisoprenoidi	31,20	55,47	8,56	4,77
Aldeidi	40,39	37,95	16,98	4,69
Acidi	37,18	52,82	9,62	0,38
Esteri	41,30	42,03	12,14	4,53



fondazione banfi

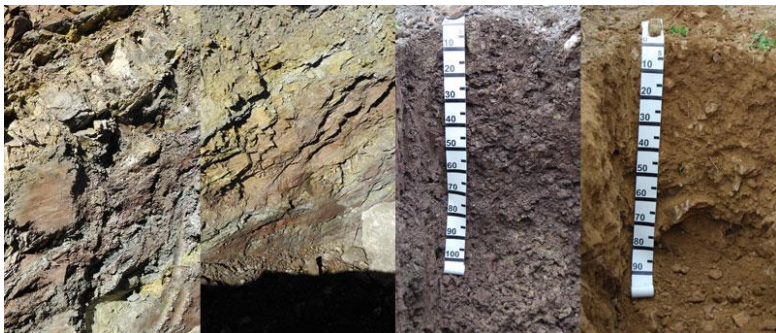
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Aromi uve del Sangiovese in Toscana: effetto della zona



Influenza suoli di Brolio sul profilo degli aromi delle uve e dei vini

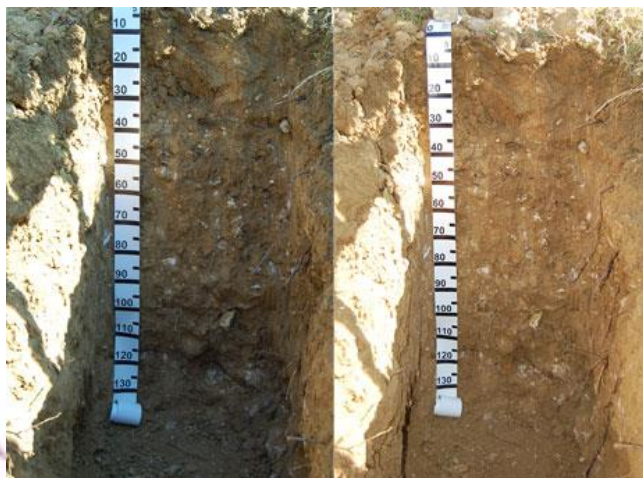
arenarie



calcare



terrazze fluviali

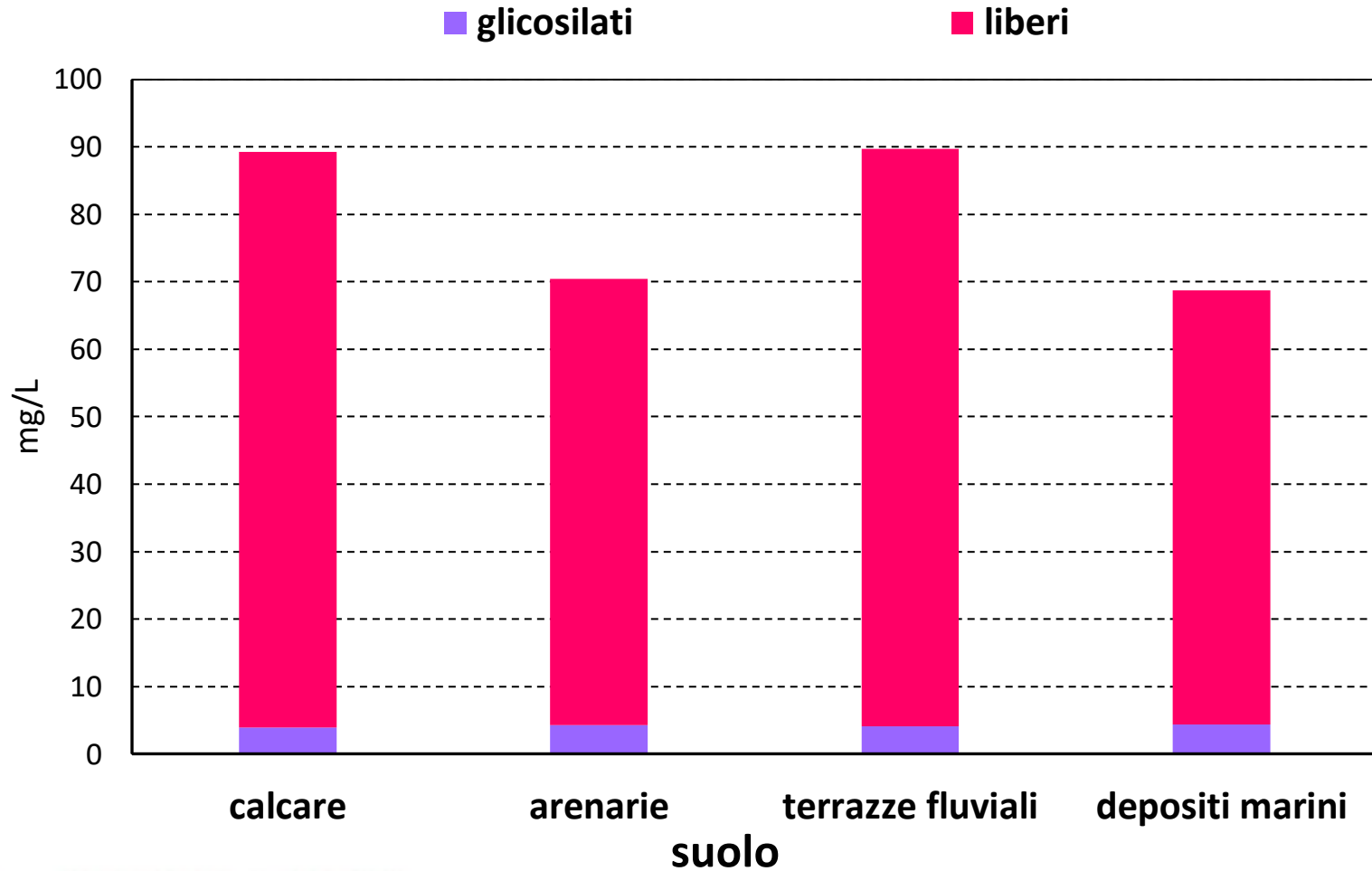


depositi marini



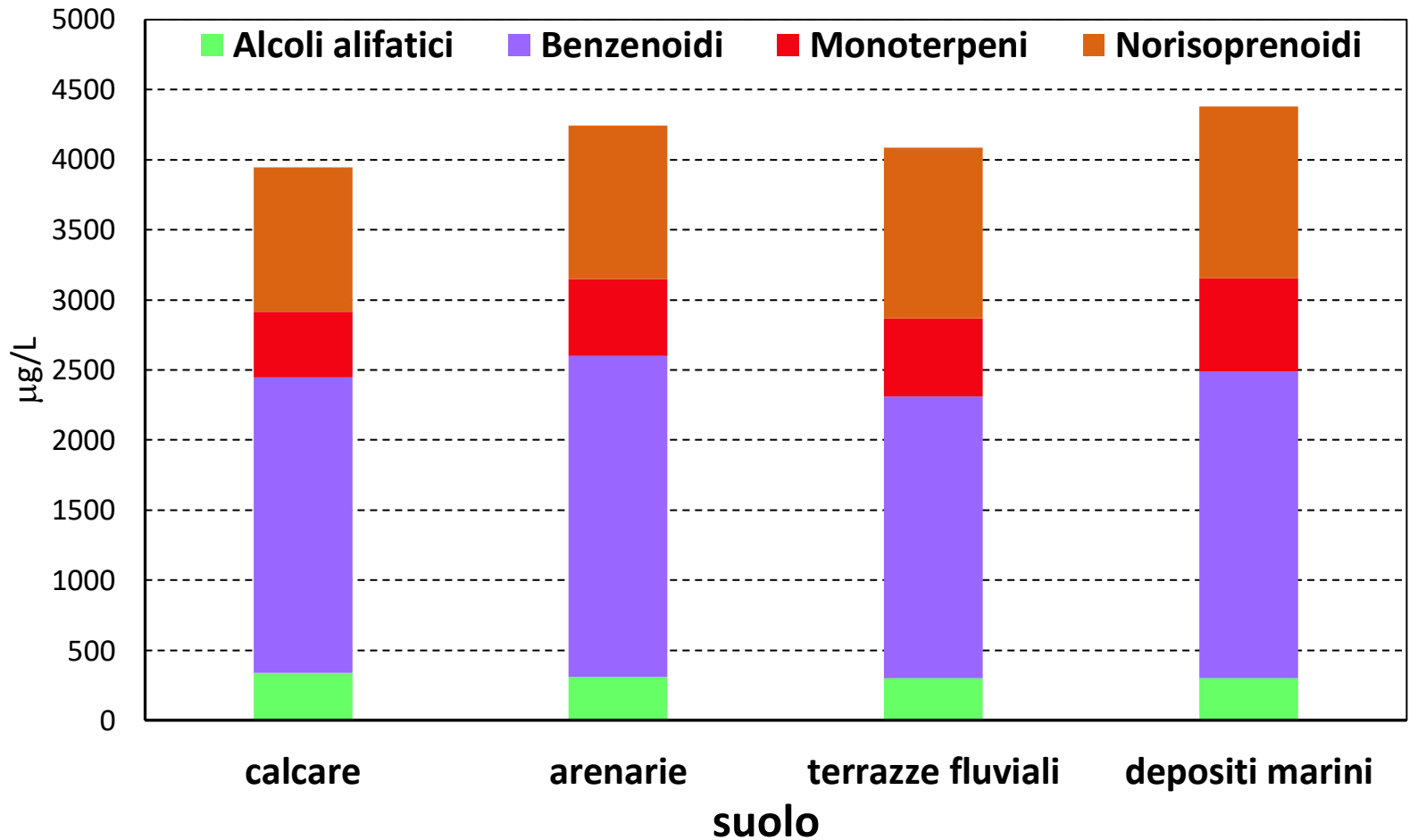
AROMI VINI

aromi totali vini



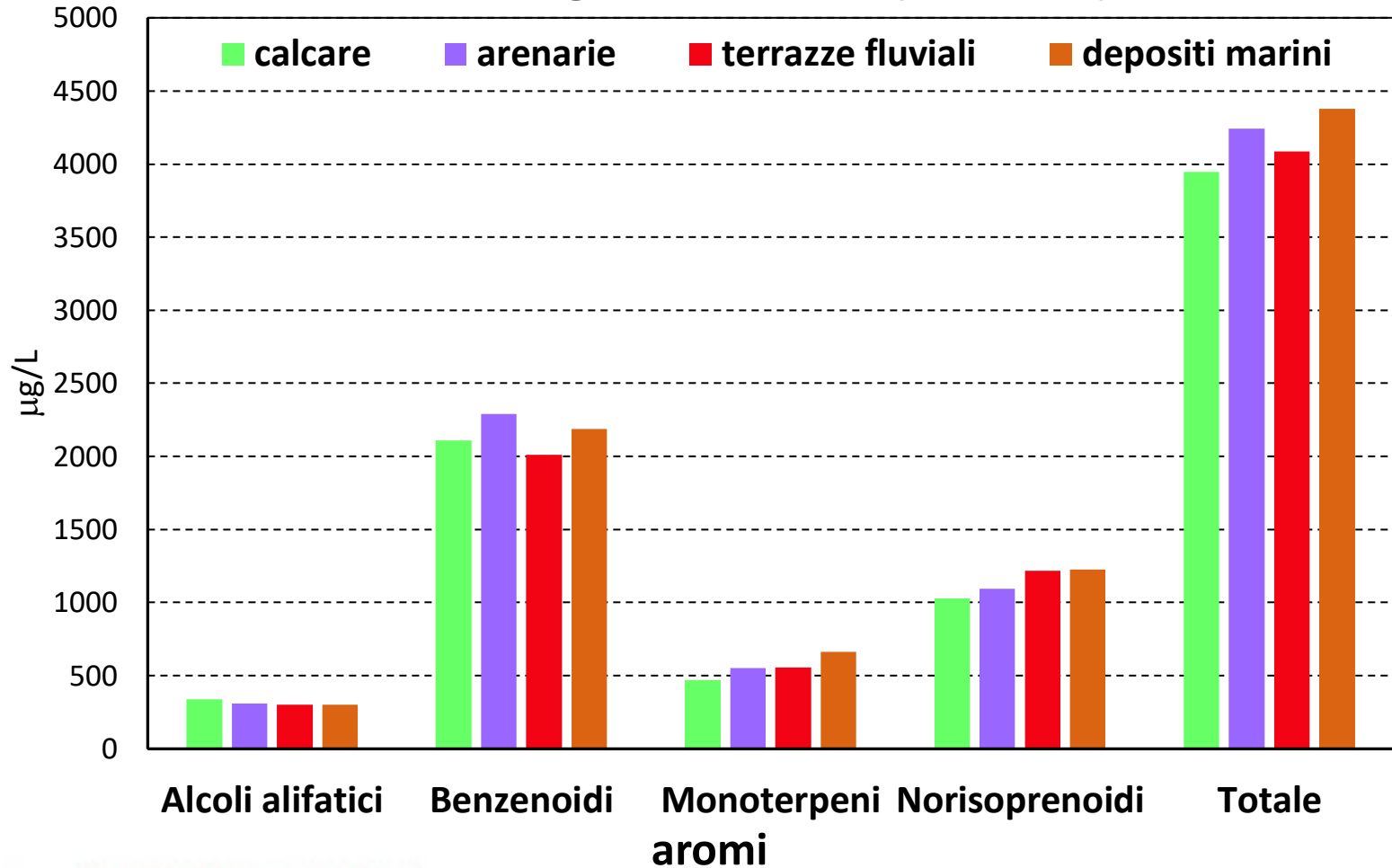
AROMI VINI

aromi glicosilati vini (varietali)



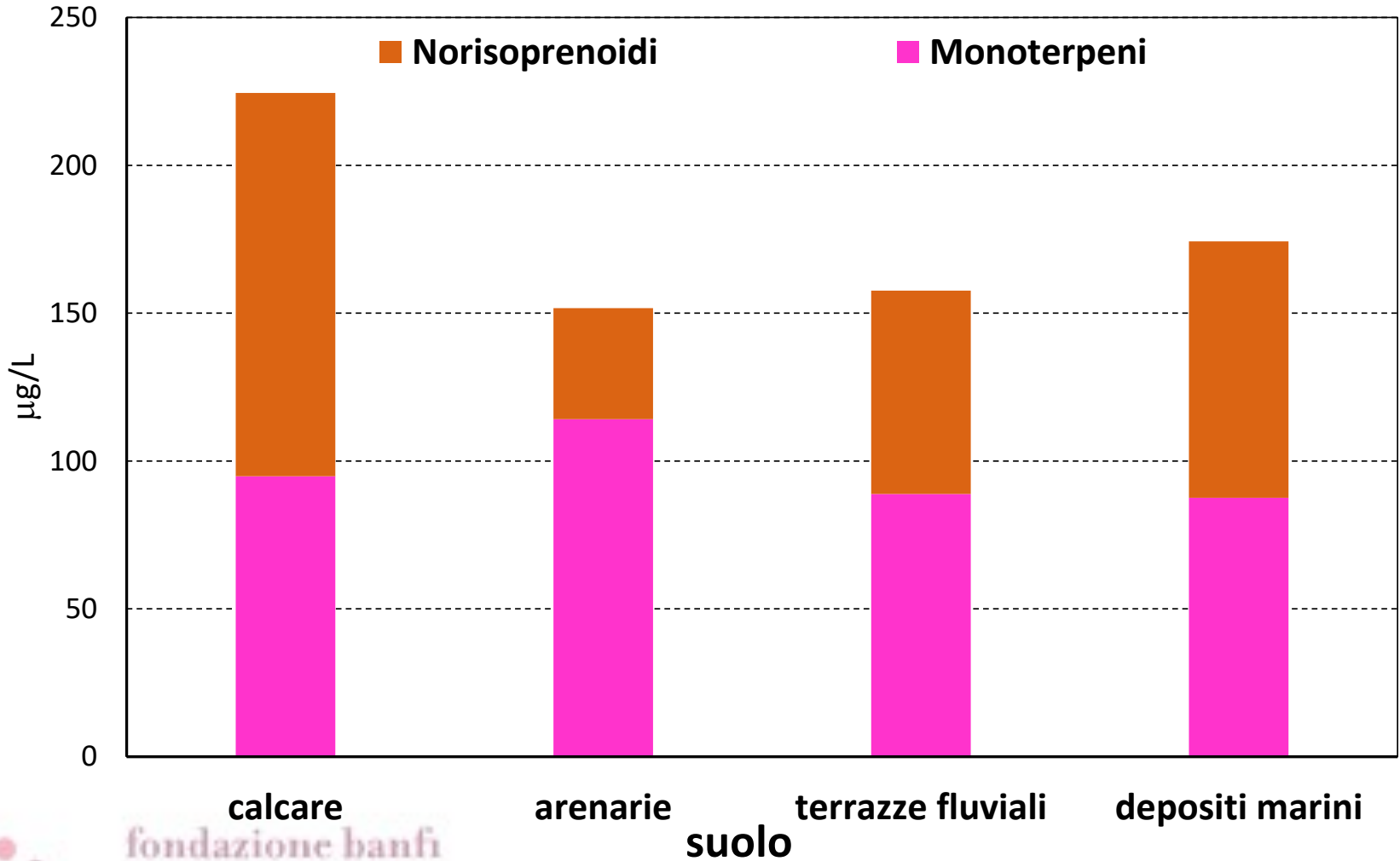
AROMI VINI

aromi glicosilati vini (varietali)



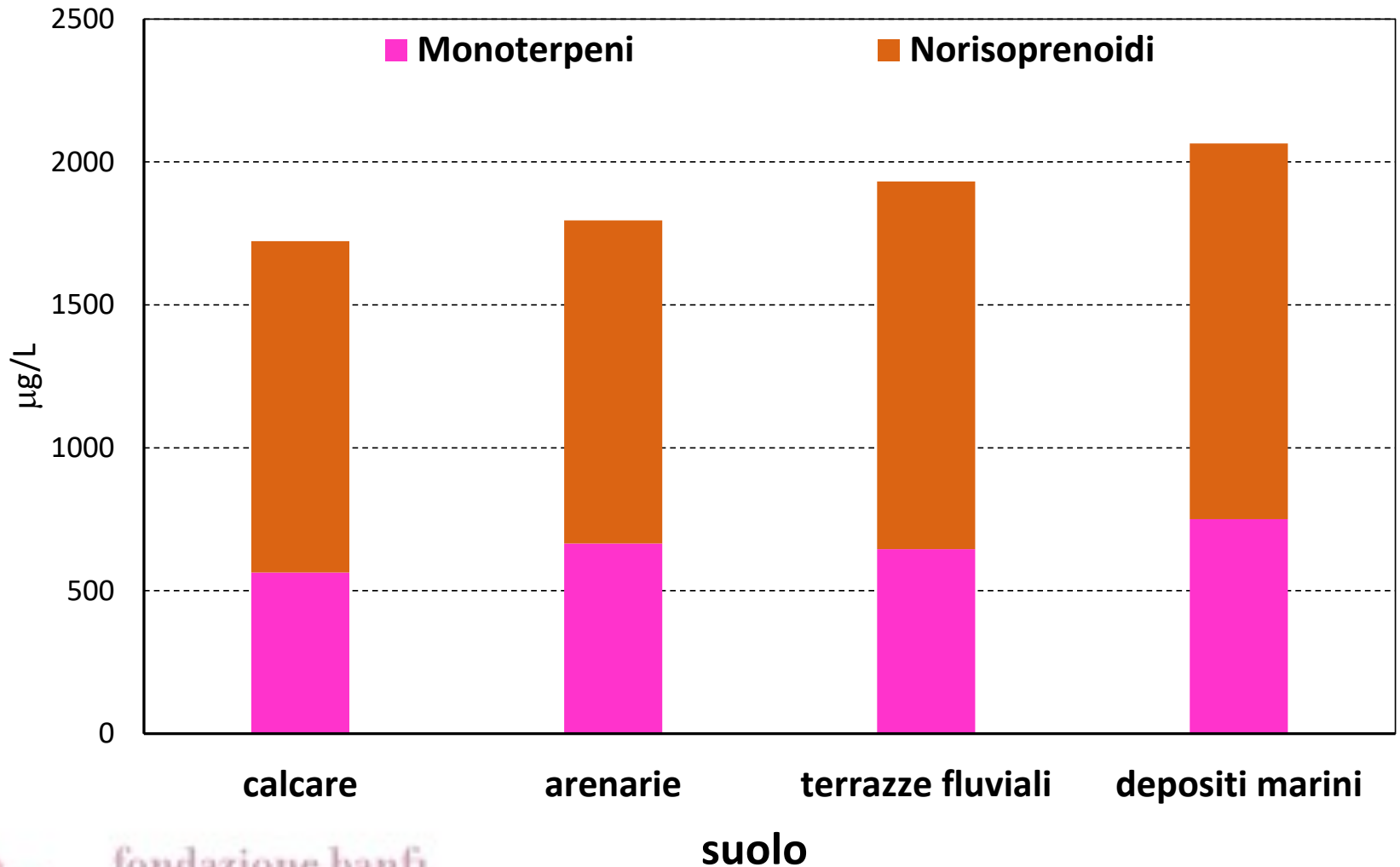
AROMI VINI

arom liberi vini (varietali)

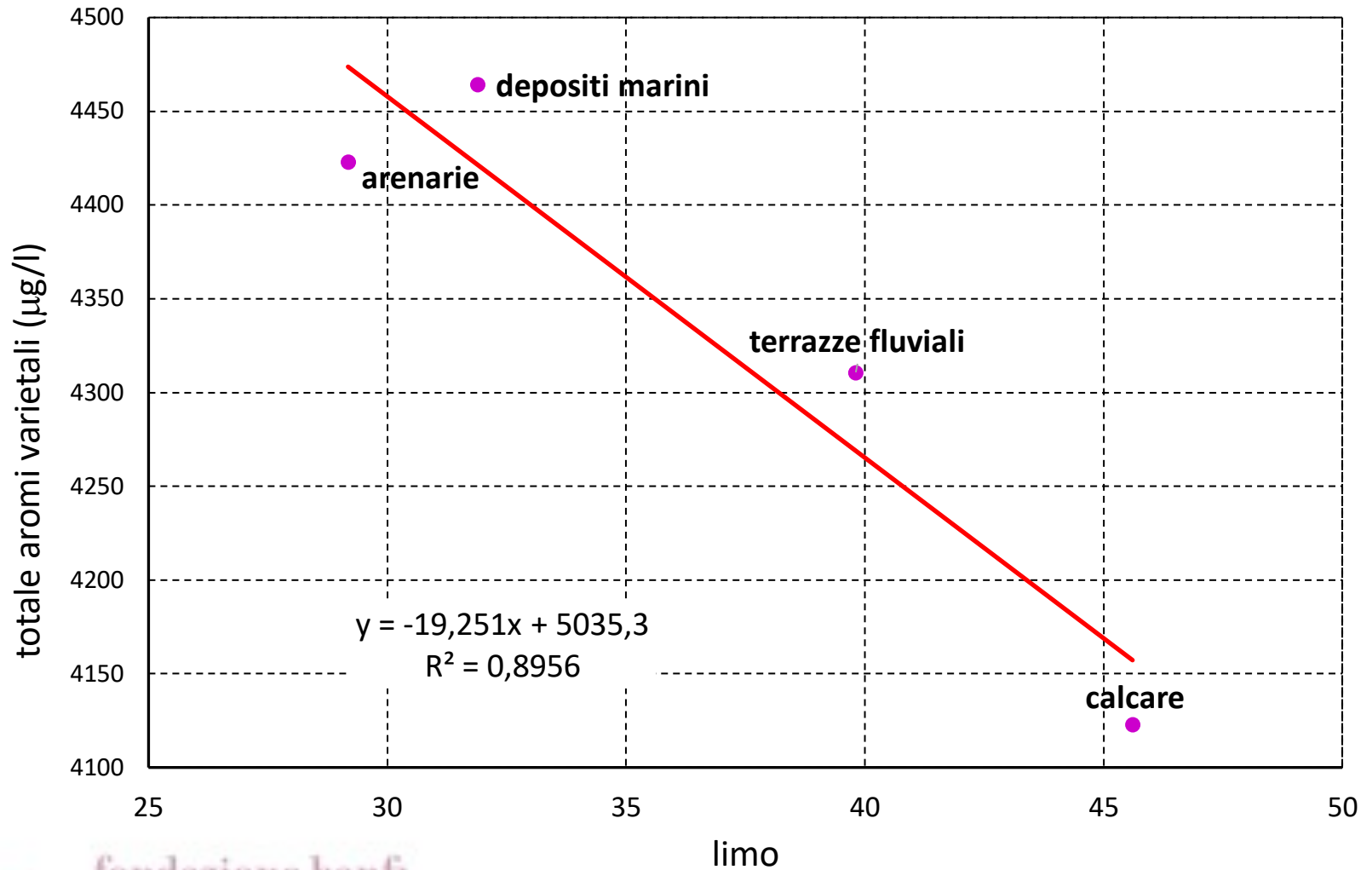


AROMI VINI

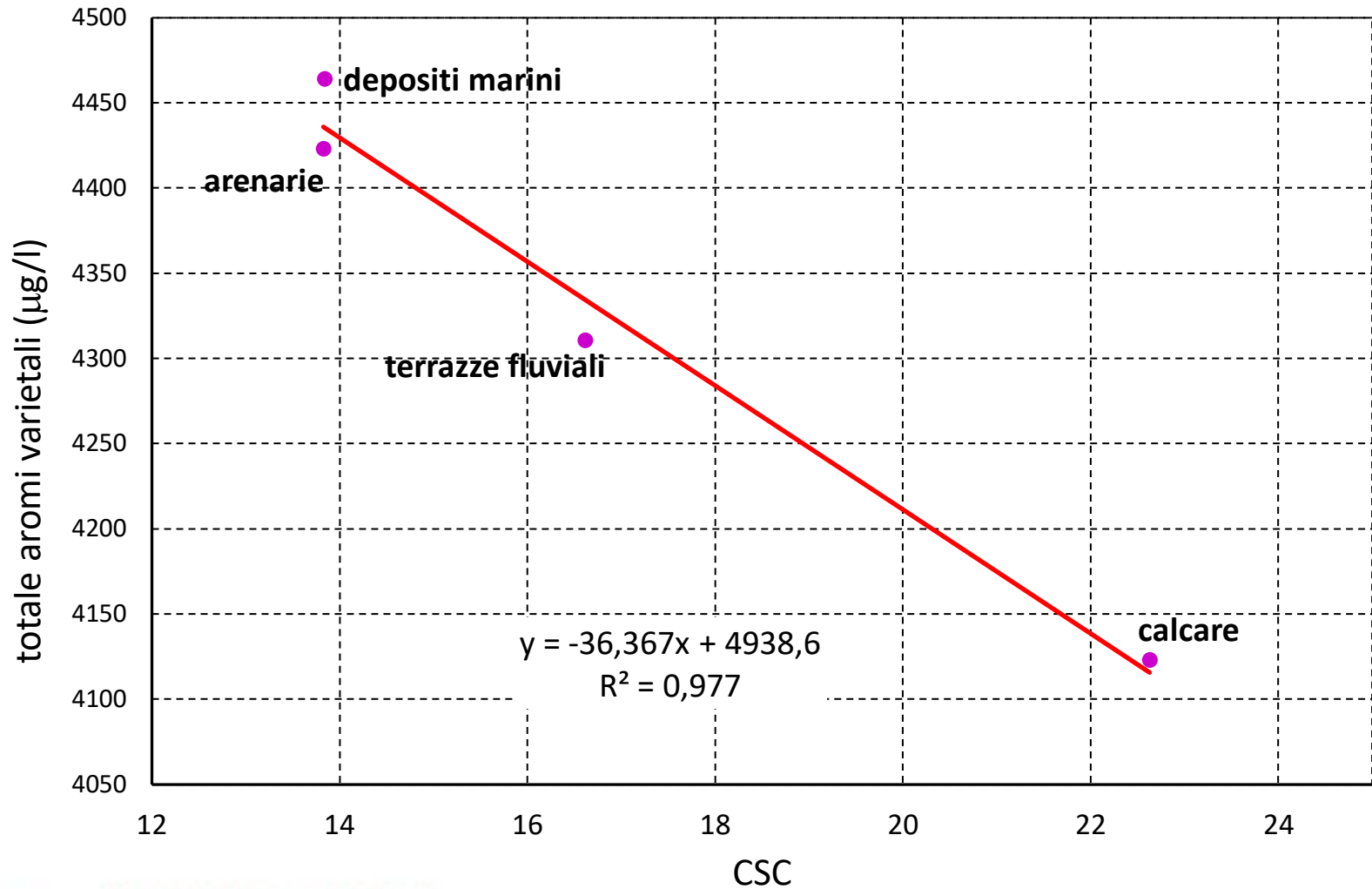
totali aromi varietali vini



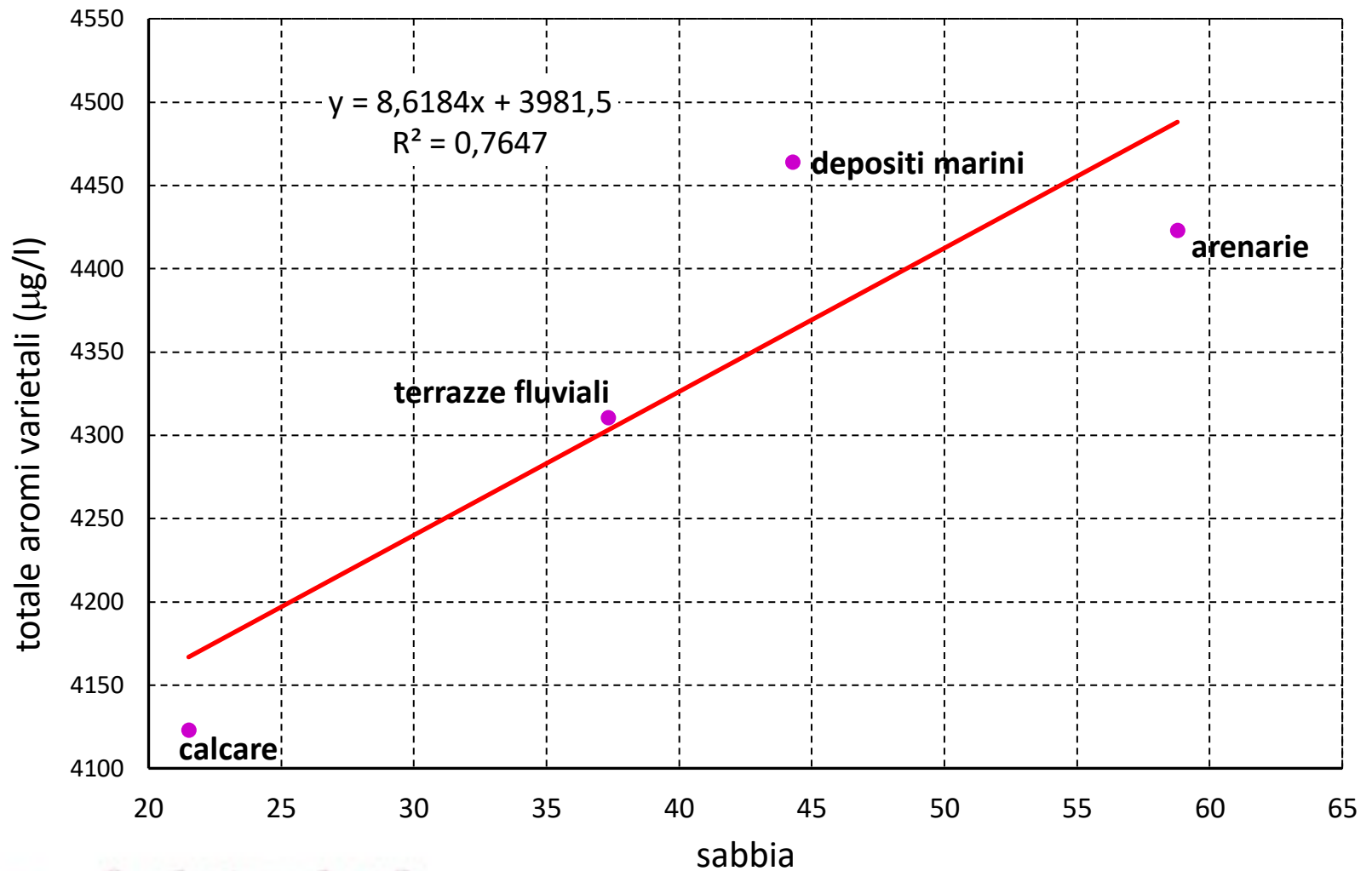
correlazioni parametri terreno-aromi



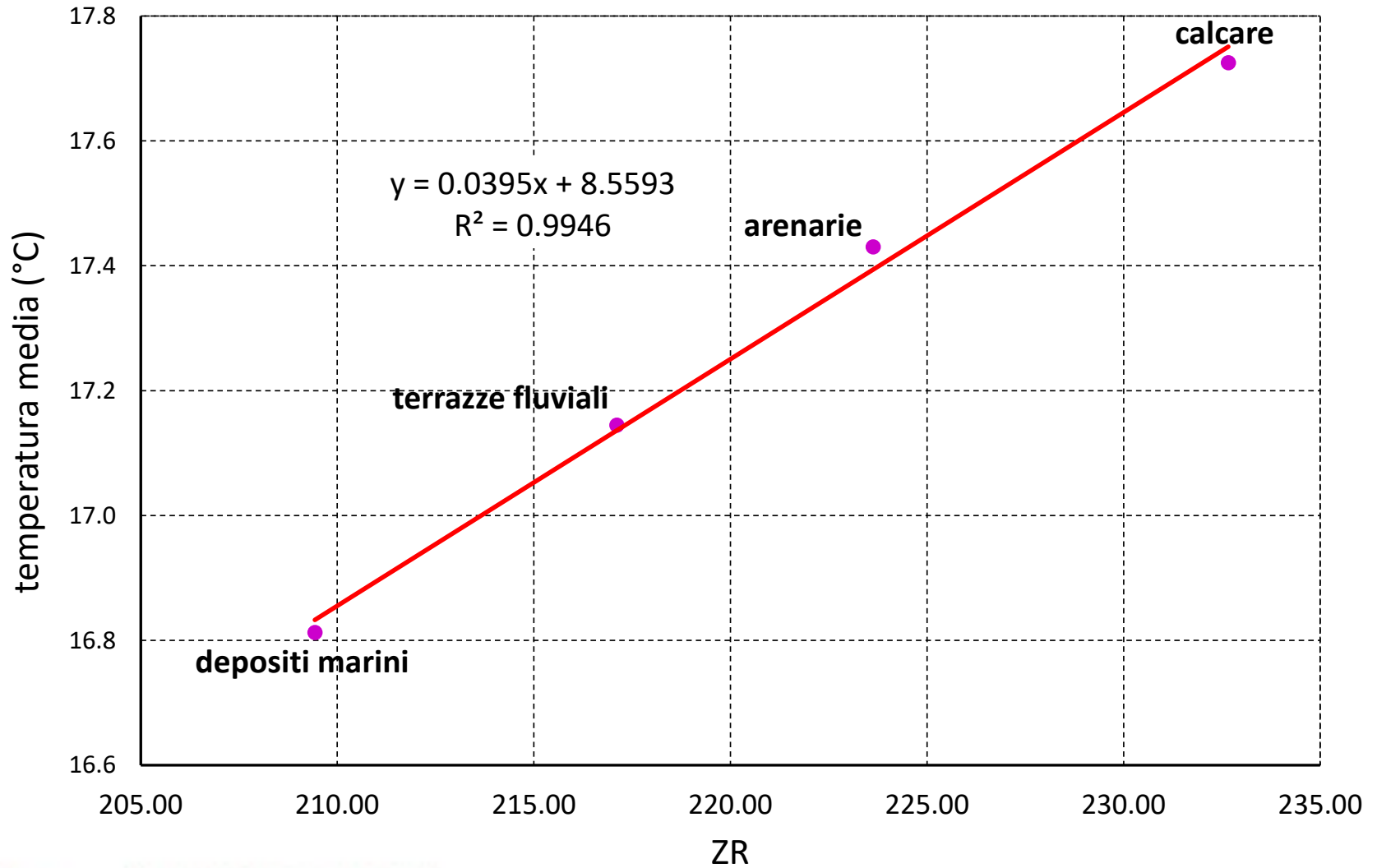
correlazioni parametri terreno-aromi



correlazioni parametri terreno-aromi



correlazioni clima-parametri vino

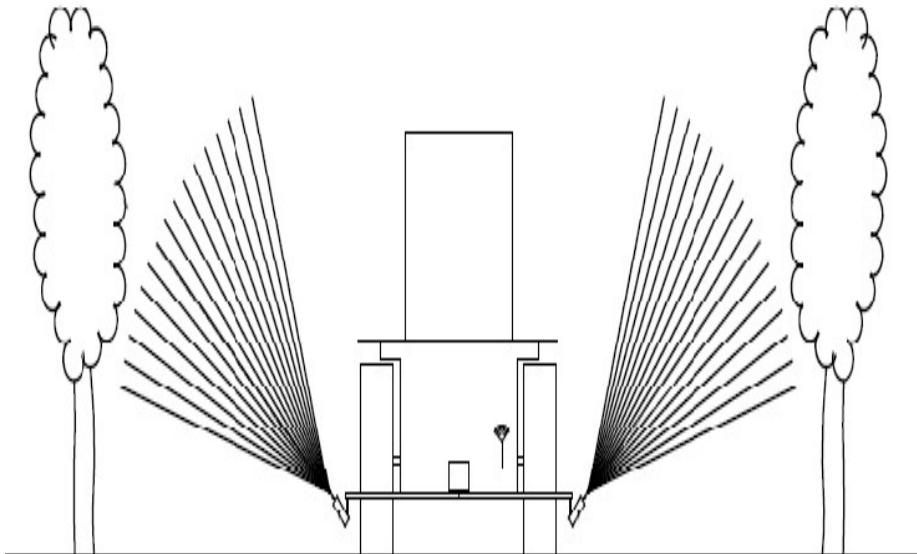


Effetto del **VIGORE** sugli aroma del Sangiovese

DOC Montecucco

MECS-VINE

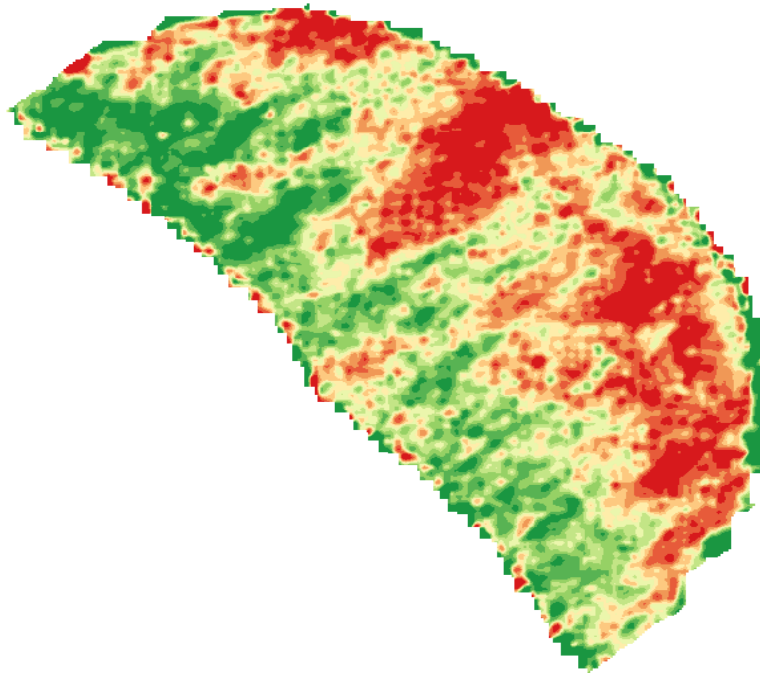
- Proximal sensing
- Sensori multiparametrici
- No limiti meteo
- Operazioni autonome
- Insensibile alle differenze di illuminazione



Effetto del **VIGORE** sugli aroma del Sangiovese DOC Montecucco

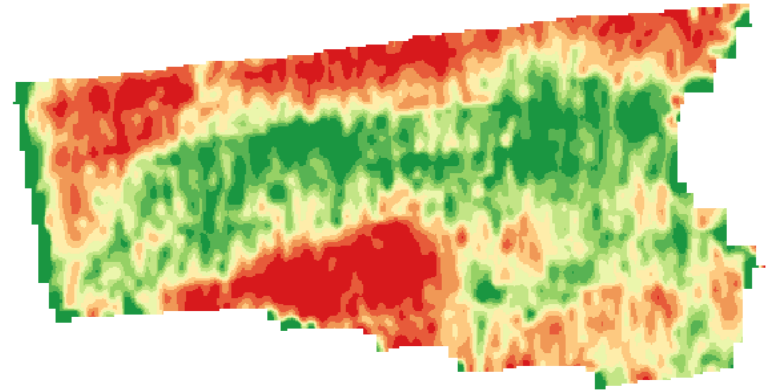
LE CERRETE: 4,769 ha

Log: 20160908.002 | Canopy Index (CI)



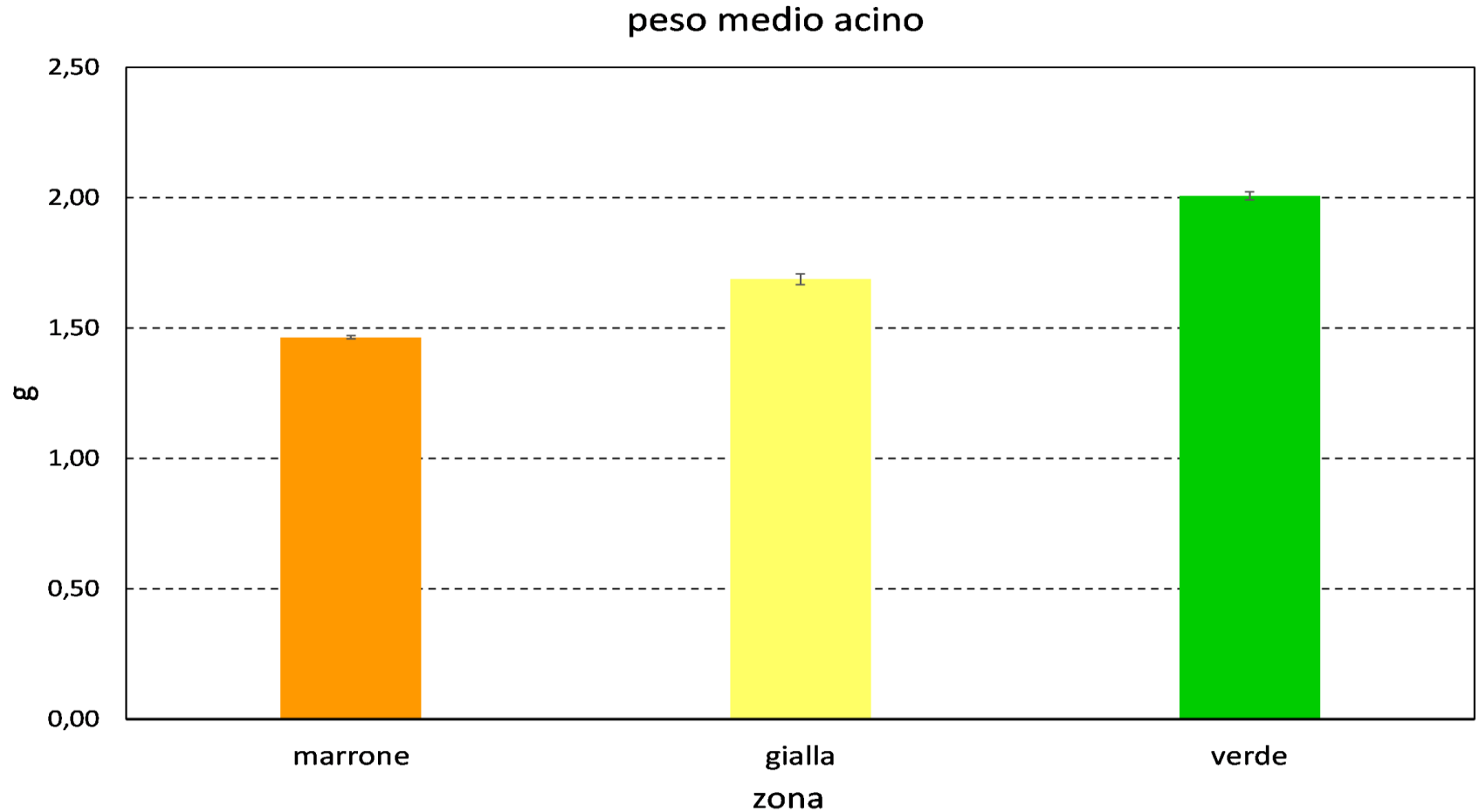
POGGIO BARBONE DI SOTTO:

2,192 ha
Log: 20160826.002 | Canopy Index (CI)



FONDAZIONE DATI
SANGUIS JOVIS

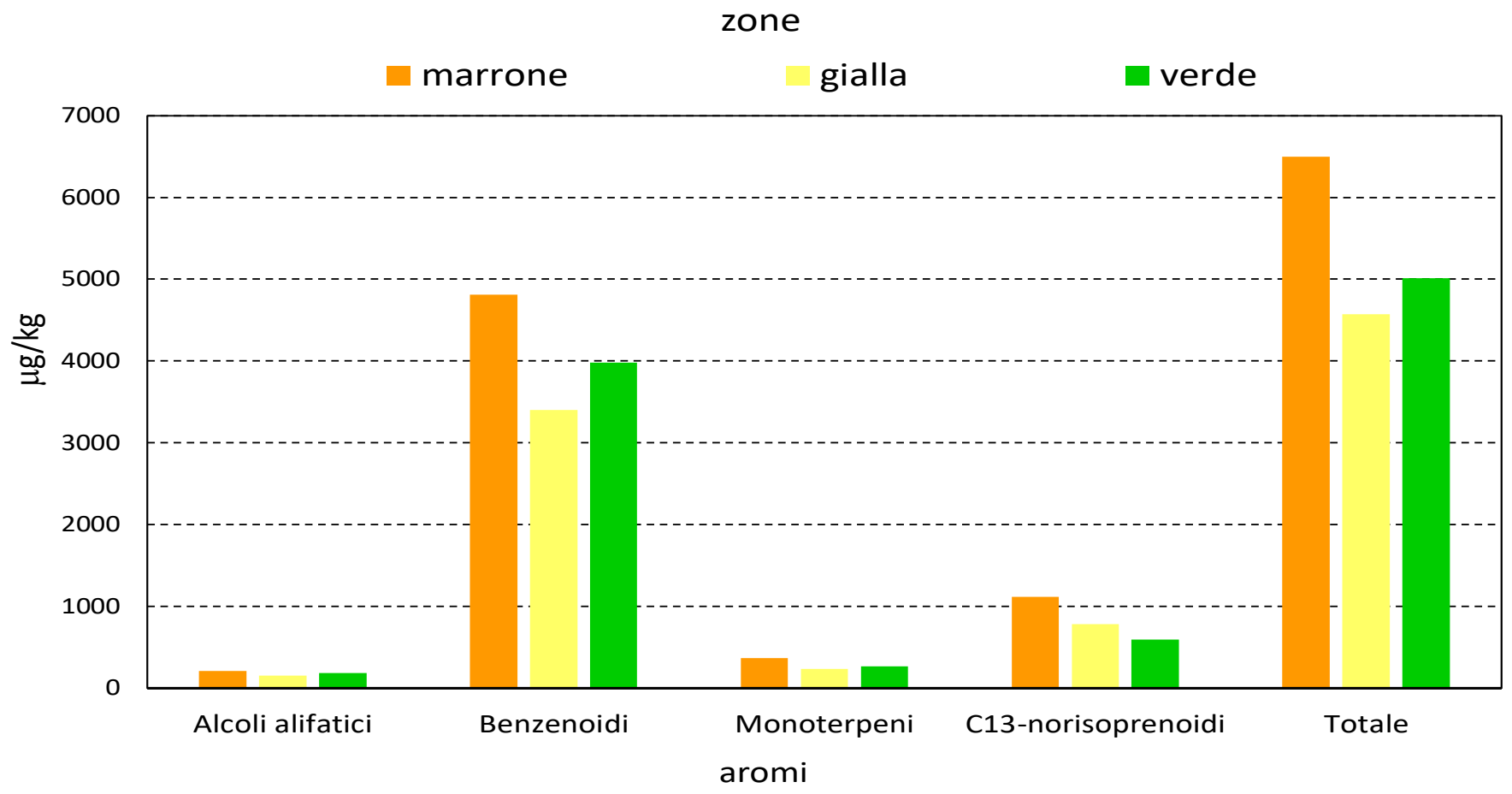
Effetto del VIGORE sugli aroma del Sangiovese DOC Montecucco



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Effetto del VIGORE sugli aroma del Sangiovese DOC Montecucco

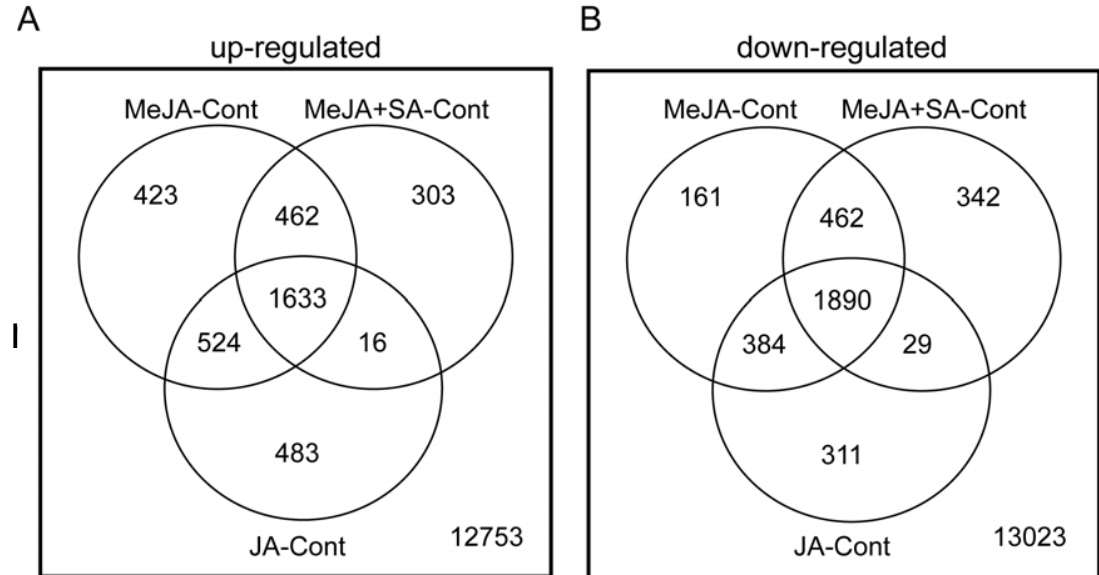


Flavour induction in berry cell suspensions

- A significantly greater amount of **aroma**, **proanthocyanidins** was produced in the MeJA-treated cell cultures compared with controls and **stilbene** biosynthesis was induced in both MeJA- and JA-treated cells

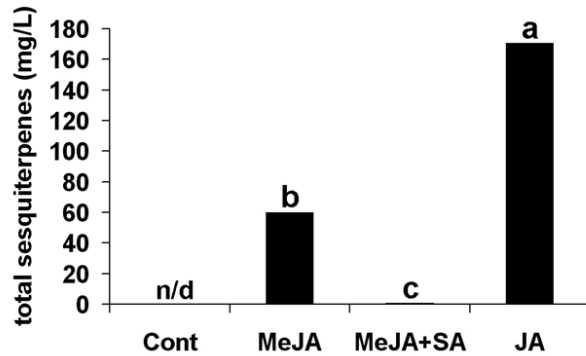
- Global changes in grape cell suspensions expression in elicitors.**

up-regulated or (B)
down-regulated

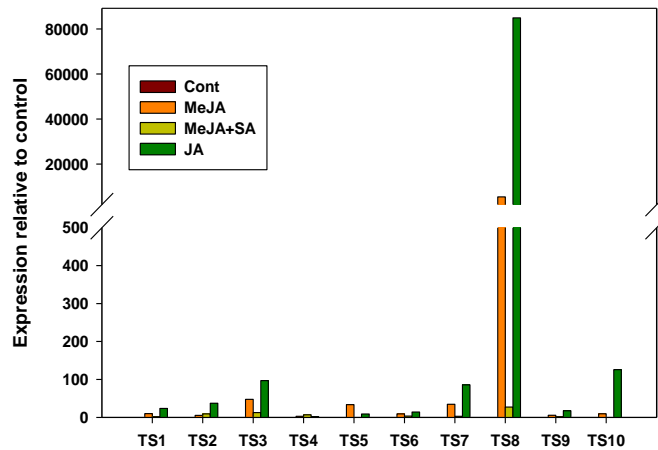


- The mechanism by which jasmonates induced secondary metabolite production in cultured grape cells varied depending on the pathway
- The increased production of **proanthocyanidins** and **stilbenes** was associated with the induction of all of the genes in associated biosynthesis pathways, including those involved in the production of **phenylalanine**, whereas increased sesquiterpene synthesis was linked to the induction of certain genes from relevant biosynthesis pathways.

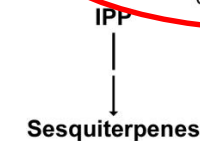
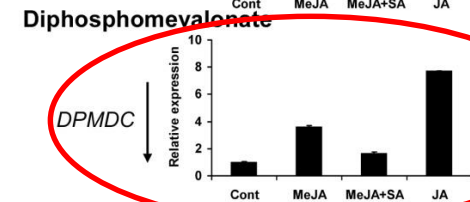
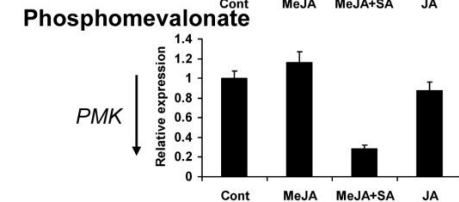
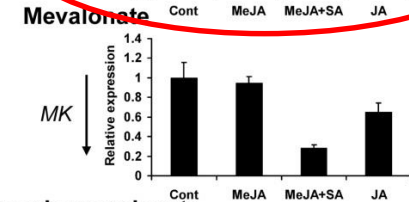
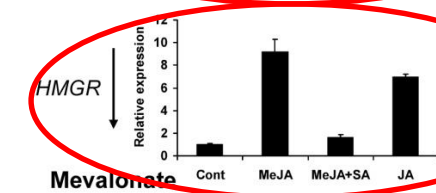
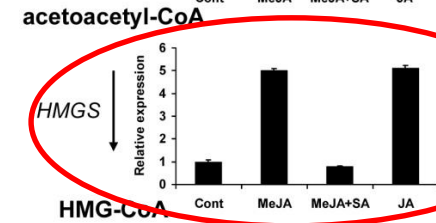
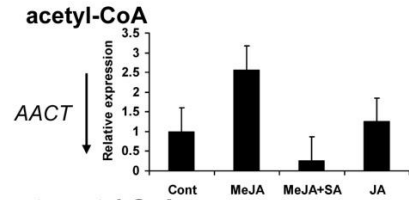
espressione genica in sospensioni cellulari



quantità totale di sesquiterpeni prodotti



espressione di putative terpene sintasi



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Gene expression in MeJA induced cell suspension

➤ D'Onofrio et al., 2009.

- A significantly greater amount of **proanthocyanidins** was produced in the MeJA-treated cell cultures compared with and stilbene biosynthesis was induced in both MeJA- and JA-treated cells

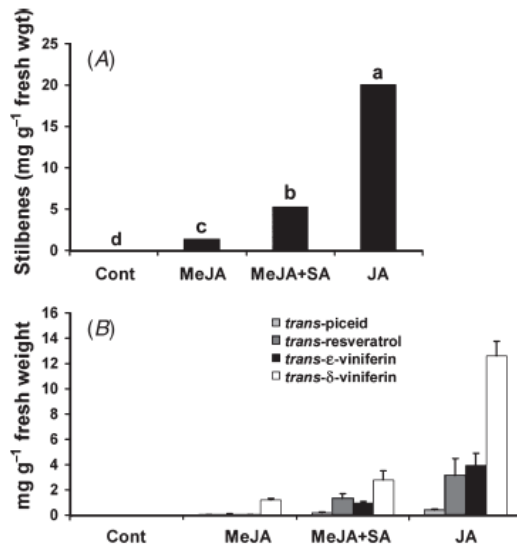


Fig. 6. Cell cultures treated with methyl jasmonate (MeJA), methyl jasmonate and salicylic acid (MeJA+SA) and jasmonic acid (JA) produce stilbenes. (A) Total stilbenes in the cultures in response to the treatments. The values represent the means of three independent replicates. Different letters represent values that are significantly different ($P < 0.05$) according to a Duncan's multiple range test. (B) The quantity of individual stilbene species in the cultures in response to the treatments. The values represent the means of three independent replicates + s.e. *trans*-Resveratrol and *trans*- ϵ -viniferin were not detected in the control. In all cases the extracts were made from cell pellets.

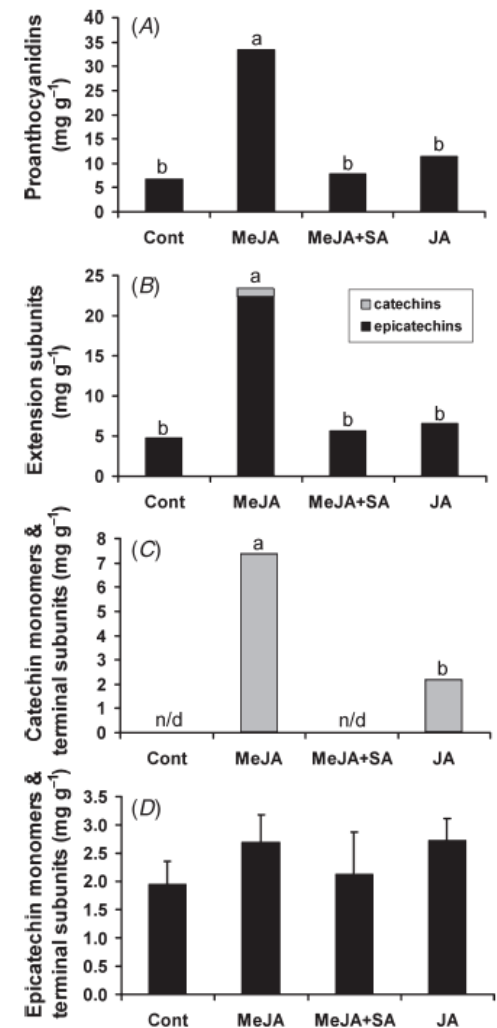
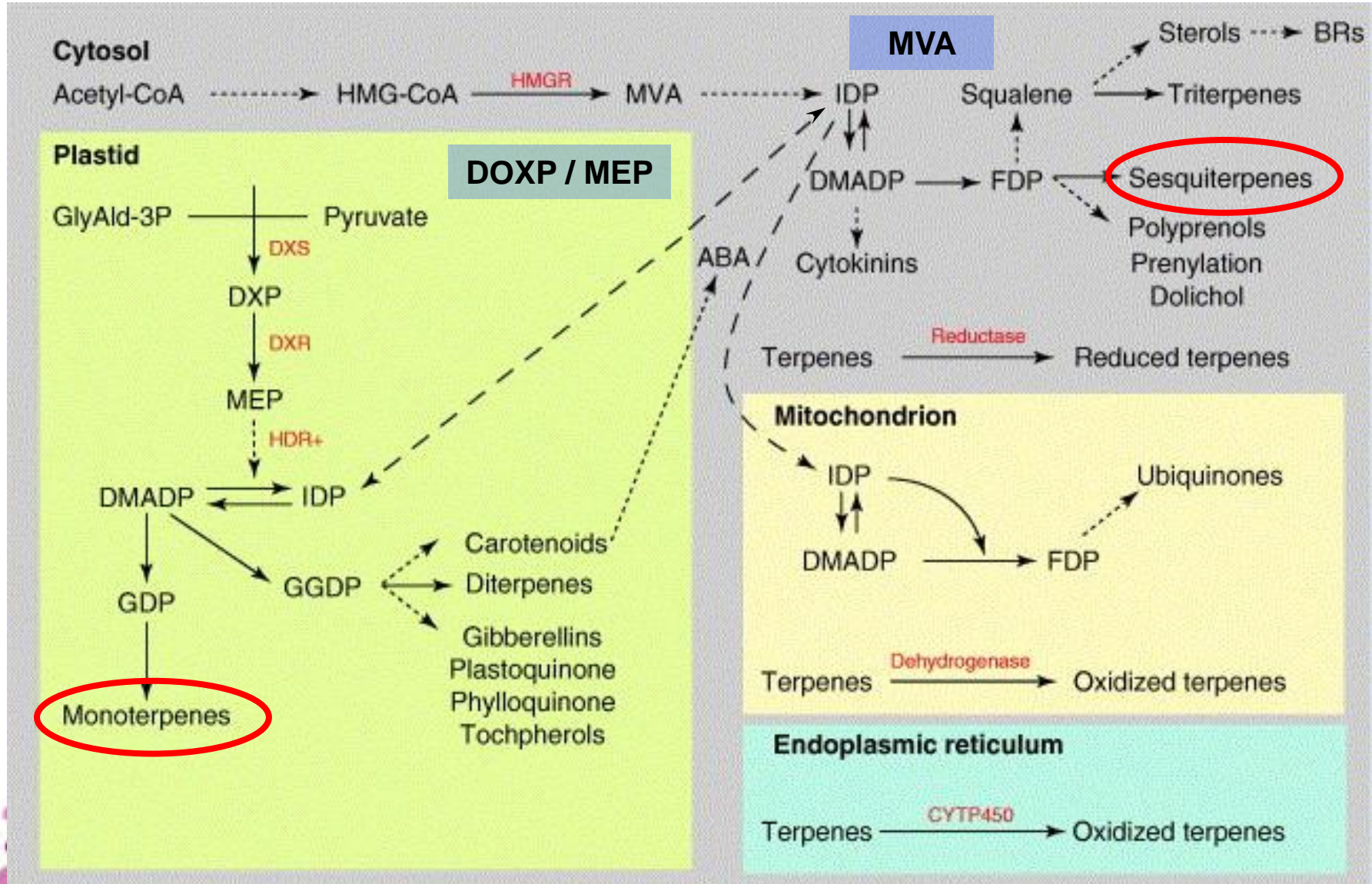


Fig. 4. Cell cultures treated with methyl jasmonate (MeJA) produce higher levels of proanthocyanidins. (A) Total proanthocyanidins, (B) extension subunits, (C) catechin monomers and terminal units and (D) epicatechin monomers and terminal subunits. In all cases the extracts were made from cell pellets. The values represent the means of three independent replicates. Different letters represent values that are significantly different ($P < 0.05$) according to a Duncan's multiple range test. Where no significant differences were observed the + s.e. is shown for each treatment. n/d, not detected.



BIOSINTESI TERPENOIDI





Le terpene sintasi nella vite

Chen *et al.*, 2011

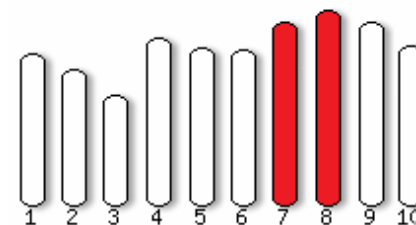
Table 1 Sizes of the TPS family and subfamilies in seven model plant genomes

Species	Genome size (Mb)	Chromosome number (1N)	Total TPS gene models ^a	Putative full length TPSs ^b	TPS subfamily ^c								
					a	b	c	d	(e)	(f)	e/f	g	h
<i>P. patens</i>	480	27	4	1	0	0	1	0	(0)	(0)	0	0	0
<i>S. moellendorffii</i>	106	27	18 ^d	14 ^d	0	0	3	0	(3)	(0)	3	0	8
<i>V. vinifera</i>	487	19	152 ^a	69 ^a	30	19	2	0	(1)	(0)	1	17	0
<i>P. trichocarpa</i>	410	19	68	32	13	12	2	0	(2)	(1)	3	2	0
<i>A. thaliana</i>	125	5	40 ^f	32 ^f	22	6	1	0	(1)	(1)	2	1	0
<i>O. sativa</i>	389	12	57	34	18	0	3	0	(9)	(0)	9	2	0
<i>S. bicolor</i>	730	10	48	24	15	2	1	0	(3)	(0)	3	3	0

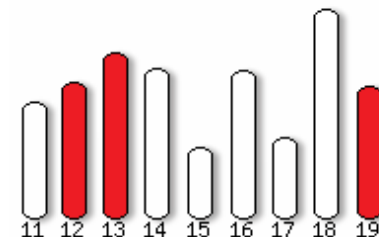
Localizzazione cromosomica



18 V_v TPS non sono ancora state mappate



43 V_v TPS funzionalmente caratterizzate



+ 13 e 18 unmapped scaffold



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Matarese F., Scalabrelli G., D'Onofrio C., 2013 - Analysis of the expression of terpene synthase genes in relation to aroma content in two aromatic *Vitis vinifera* varieties - Functional Plant Biology

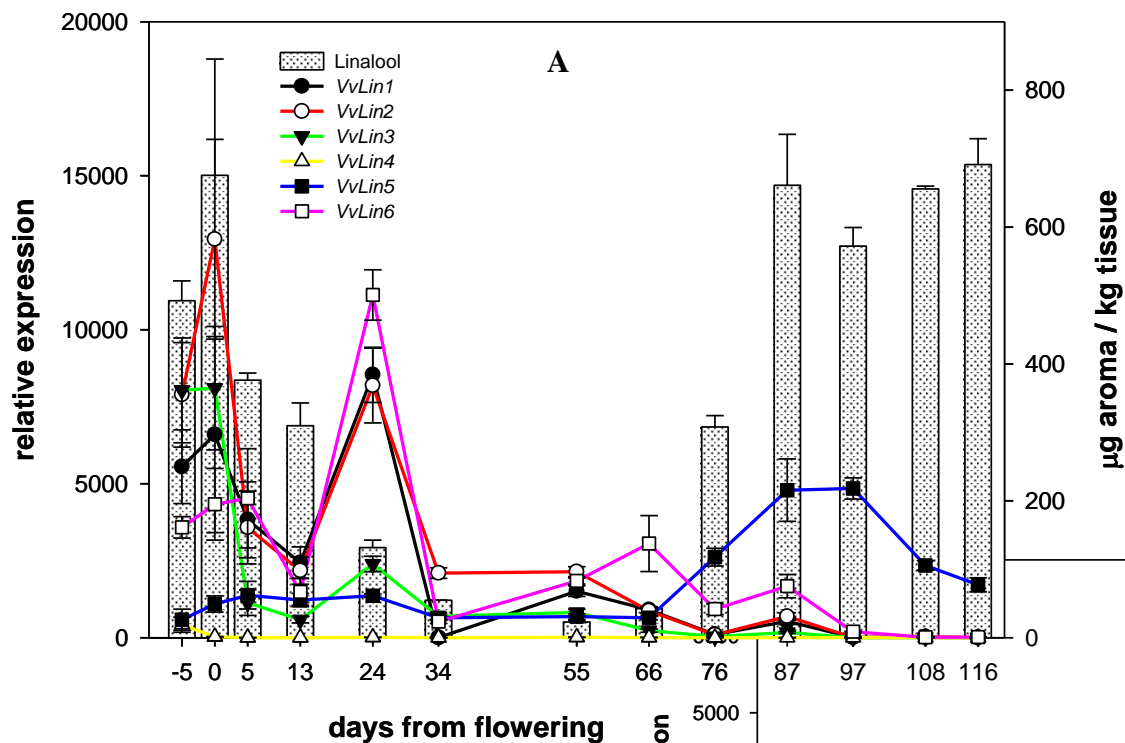
geni analizzati nel corso dello sviluppo dell'acino

Nome	Principali prodotti enzimatici	Sottofamiglia
<i>VvGwECar1</i>	(E)-b-cariofillene	a
<i>VvGwECar2</i>	(E)-b-cariofillene	a
<i>VvGwECar3</i>	(E)-b-cariofillene	a
<i>VvPNECar2</i>	(E)-b-cariofillene	a
<i>VvPNEb2epiCar</i>	(E)-b-cariofillene/2-epi-(E)-b-cariofillene	a
<i>VvGwaBer</i>	(E)-a-bergamotene	a
<i>VvGwGerD</i>	Germacrene D	a
<i>VvCSaFar</i>	(E, E)-a-farnesene	a
<i>VvPNaZin</i>	zingiberene	a
<i>VvPNSelnt</i>	selina-4, 11-diene/intermedeolo	a
<i>VvPNaHum</i>	a-humulene	a
<i>VvGwbOci</i>	(E)-b-ocimene	b
<i>VvCSbOci</i>	(E)-b-ocimene	b
<i>VvCSbOciM</i>	(E)-b-ocimene/myrcene	b
<i>VvGwbOciF</i>	(E)-b-ocimene/(E, E)-a-farnesene	b
<i>VvGwaPhe</i>	(+)-a-fellandrene	b
<i>VvPNaPin1</i>	(+)-a-pinene	b
<i>VvTer</i>	a-terpineolo	b
<i>VvPNRLin</i>	(3R)-linalolo	b
<i>VvPNLinNer1</i>	(3S)-linalolo/(E)-nerolidolo	g
<i>VvPNLinNer2</i>	(3S)-linalolo/(E)-nerolidolo	g
<i>VvPNLNG11</i>	(3S)-linalolo/(E)-nerolidolo	g
<i>VvPNLNG12</i>	(3S)-linalolo/(E)-nerolidolo	g
<i>VvPNLNG13</i>	(3S)-linalolo/(E)-nerolidolo	g
<i>VvPNLNG14</i>	(3S)-linalolo/(E)-nerolidolo	g
<i>VvPNGer</i>	Geraniolo	g

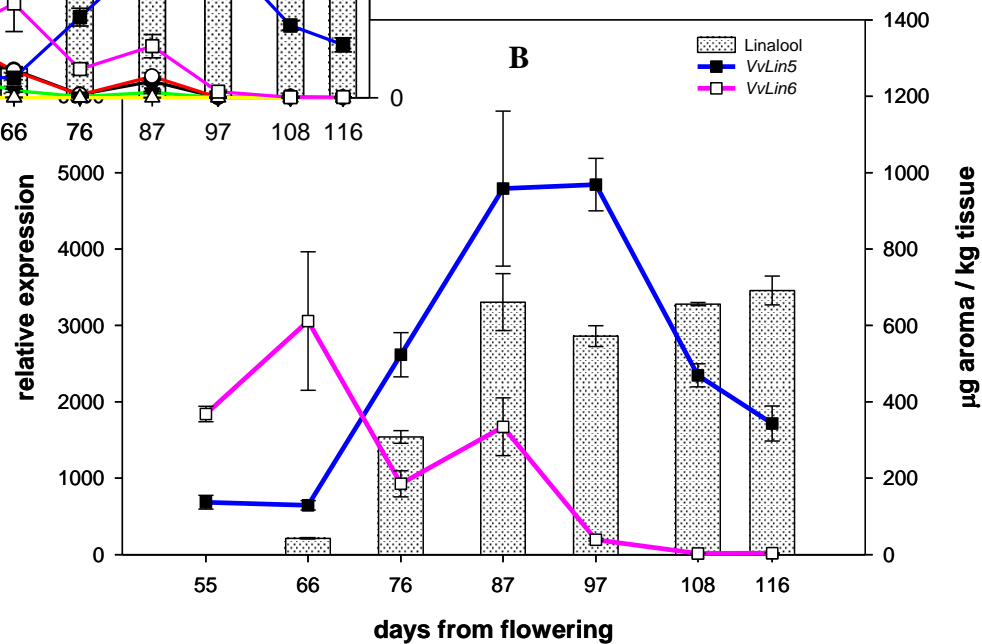
11 sesquiterpene sintasi

15 monoterpene sintasi



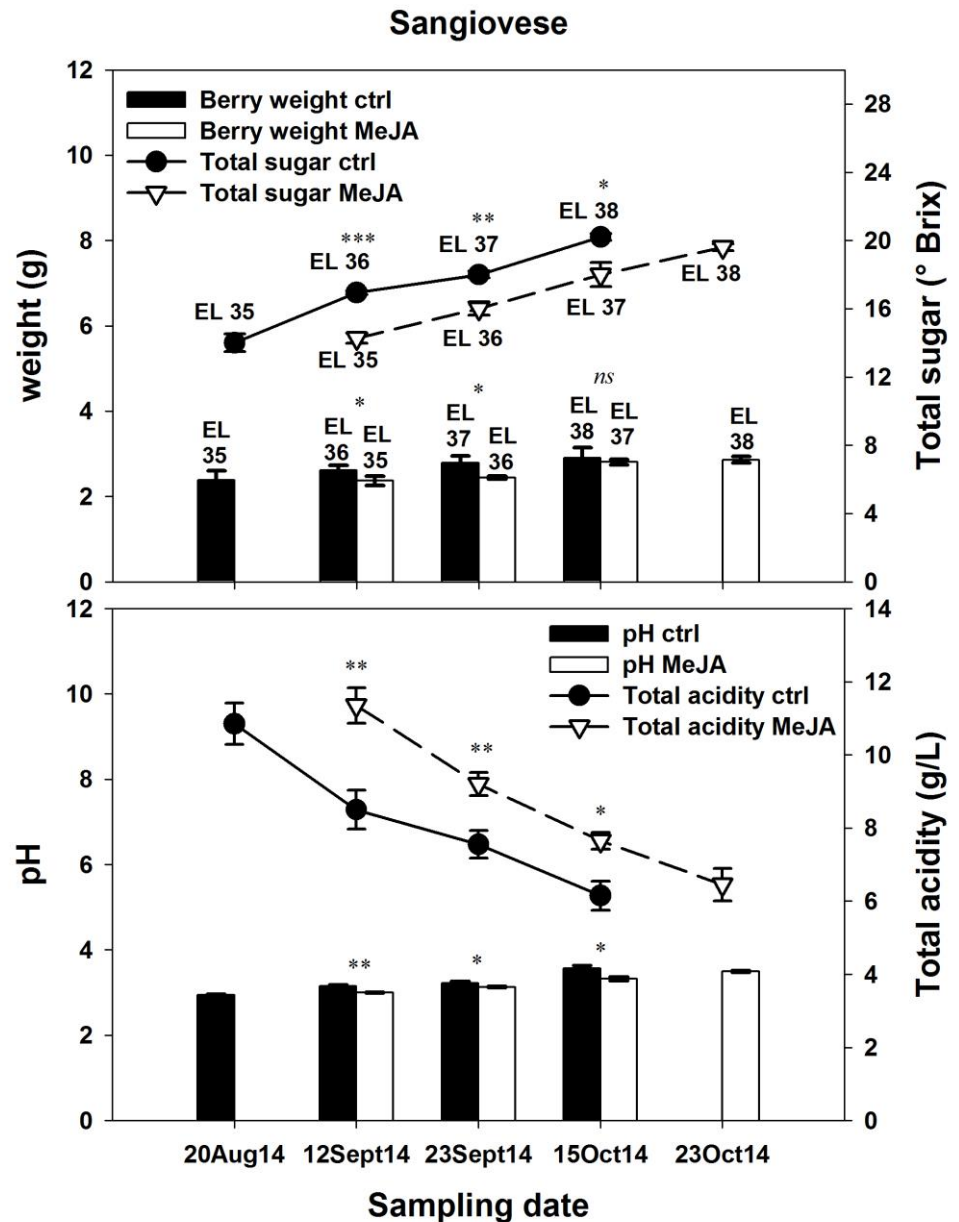


Relative expression pattern of linalool synthase genes in 'Moscato bianco' samples correlated with linalool trend. (B) zoom of relative expression pattern of *VvLin5* and 6 genes of the last six 'Moscato bianco' samples.



D'Onofrio C., Matarese F., Cuzzola A., 2018. Effect of methyl jasmonate on aroma of Sangiovese grapes. Food Chemistry 242: 352-361

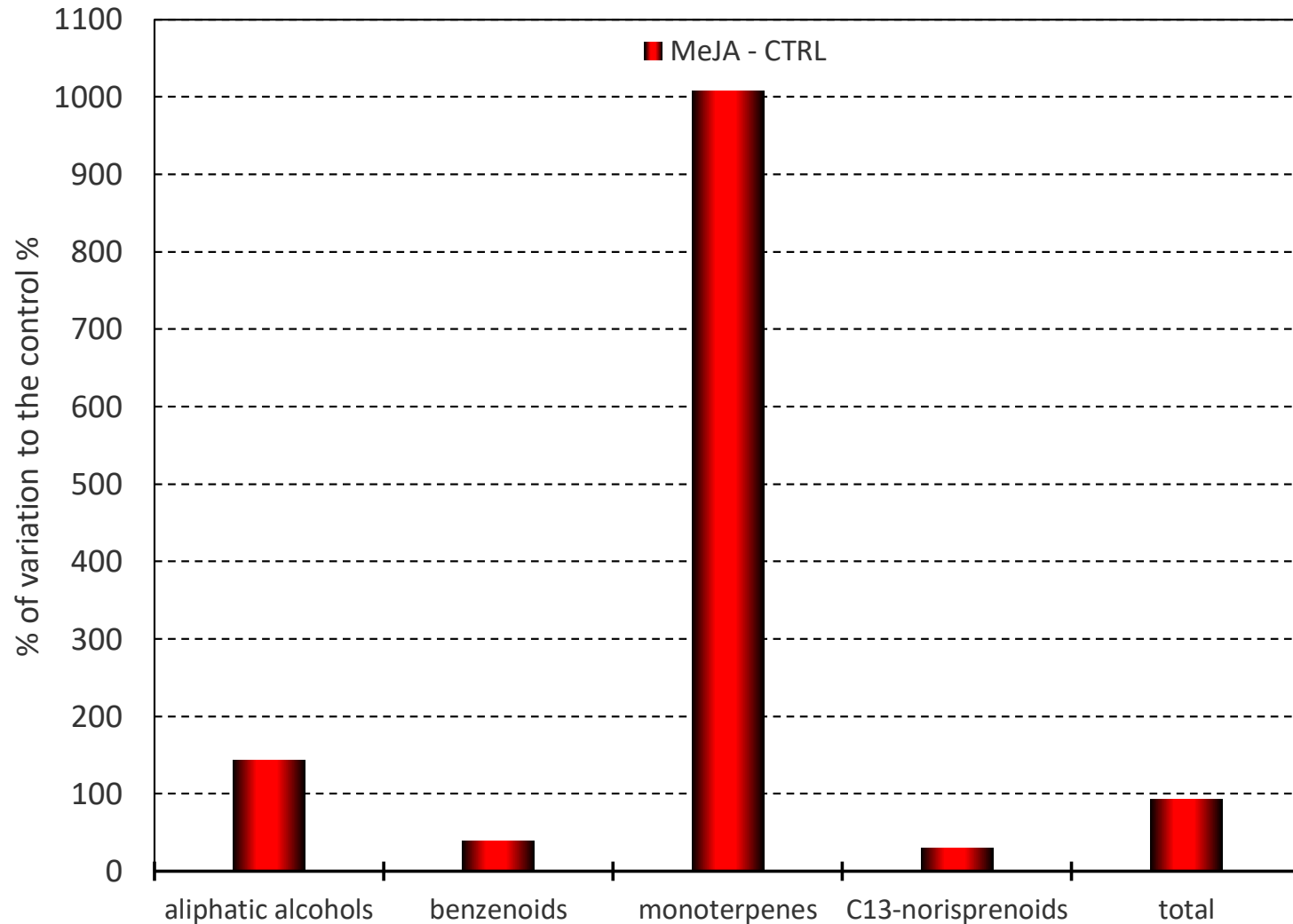
Il trattamento con MeJA induce un ritardo della maturazione di almeno 1 settimana



D'Onofrio C., Matarese F., Cuzzola A., 2018. Effect of methyl jasmonate on aroma of Sangiovese grapes. Food Chemistry 242: 352-361

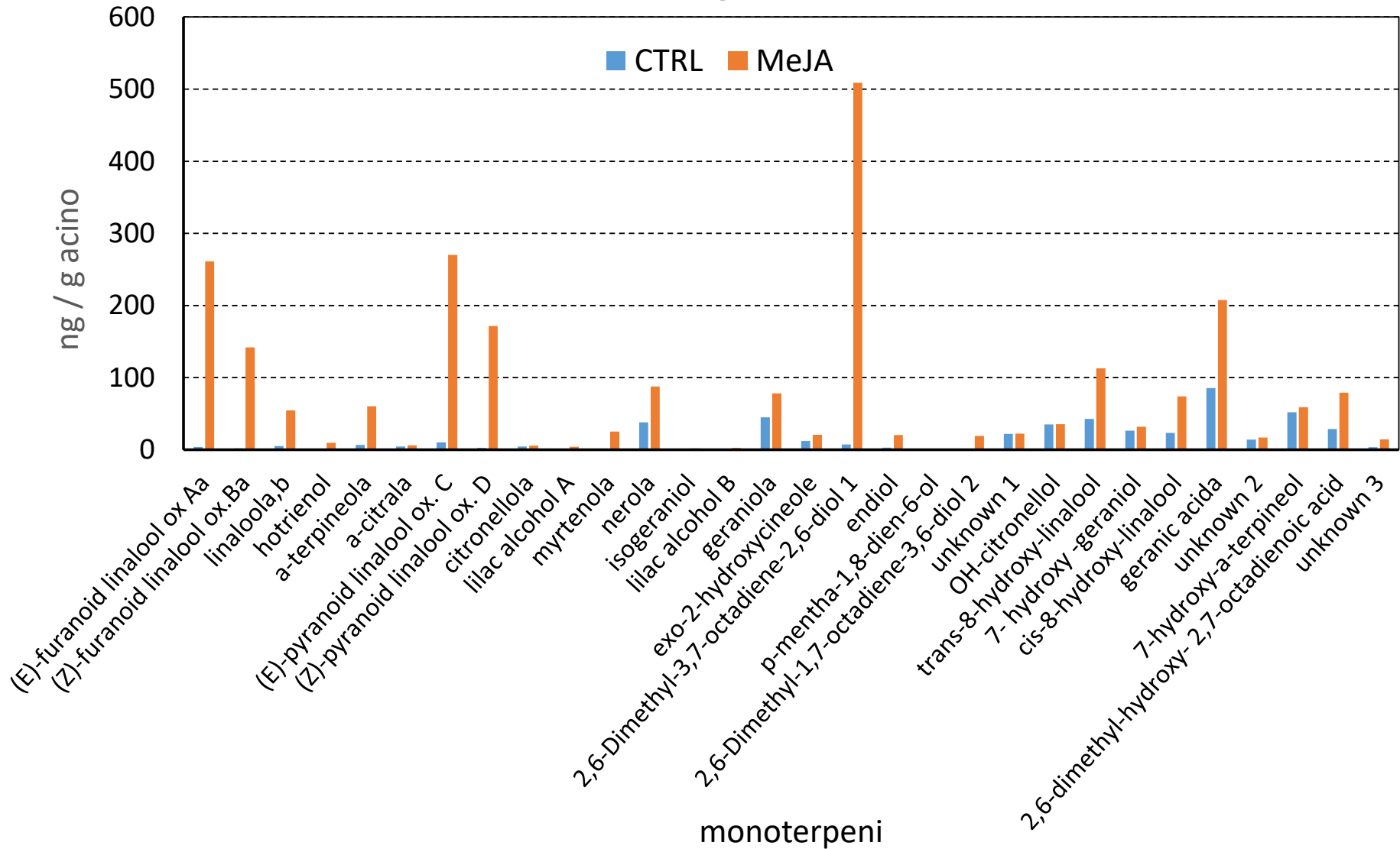
Incremento degli aroma negli acini

MeJA - CTRL

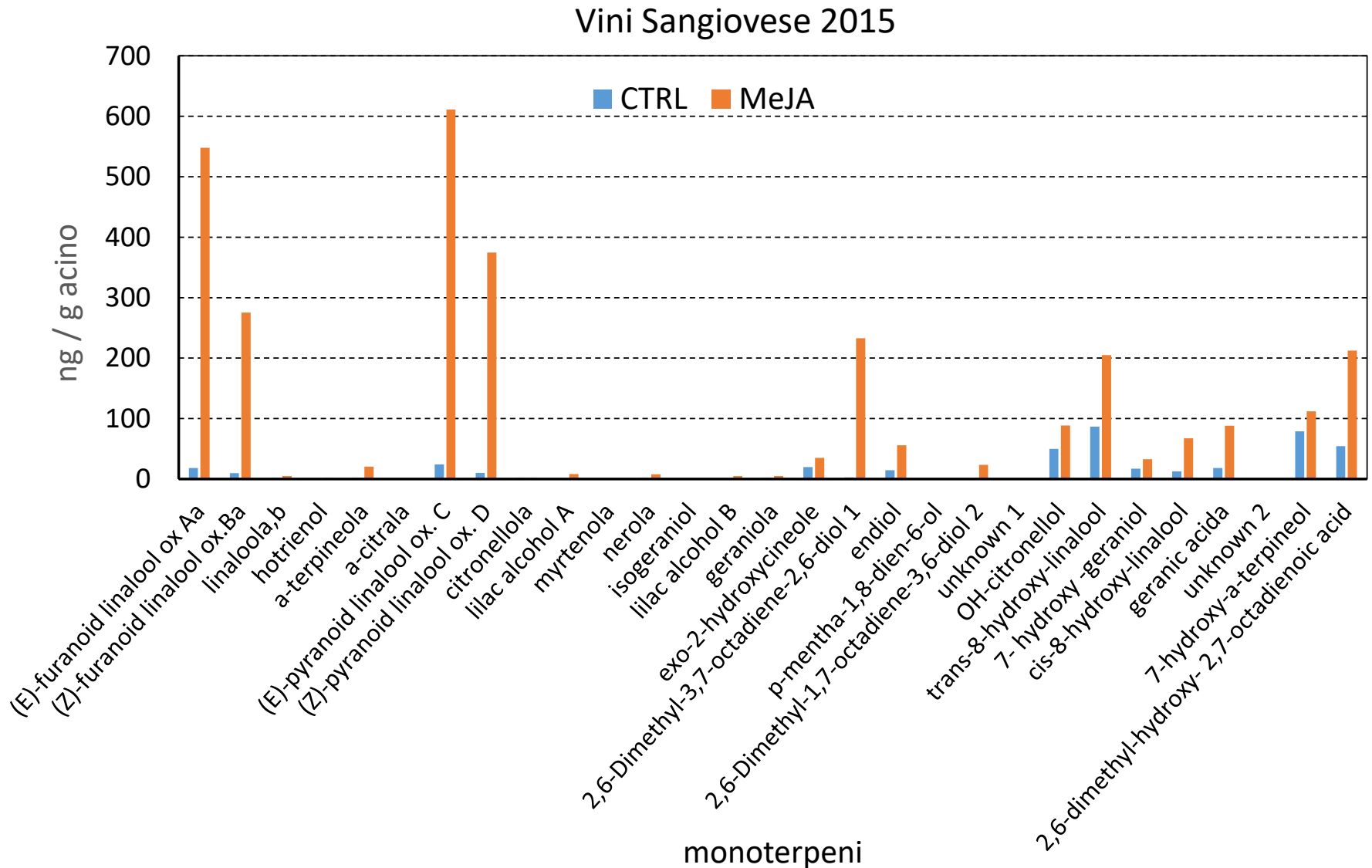


D'Onofrio C., Matarese F., Cuzzola A., 2018. Effect of methyl jasmonate on aroma of Sangiovese grapes. Food Chemistry 242: 352-361

Uve Sangiovese 2015

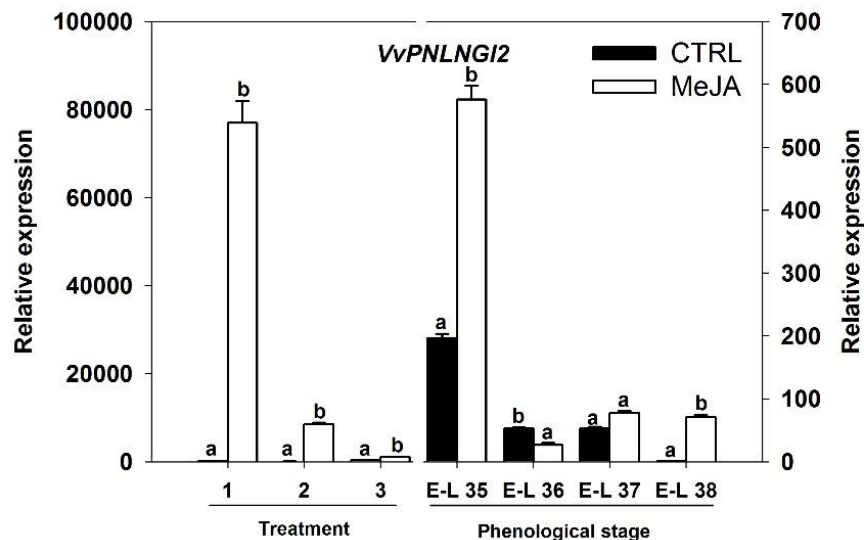
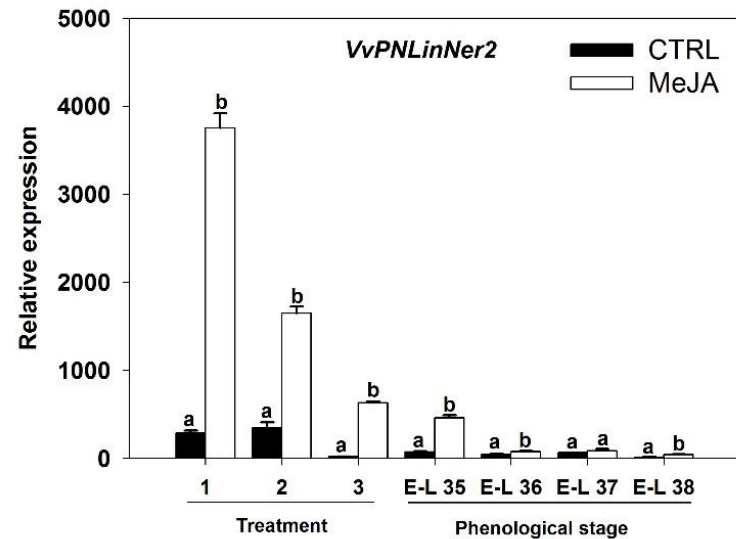
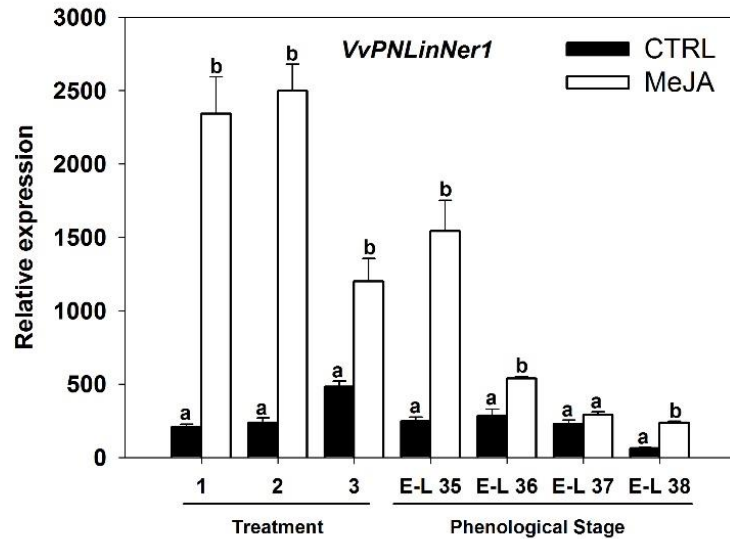


D'Onofrio C., Matarese F., Cuzzola A., 2018. Effect of methyl jasmonate on aroma of Sangiovese grapes. Food Chemistry 242: 352-361



D'Onofrio C., Matarese F., Cuzzola A., 2018. Effect of methyl jasmonate on aroma of Sangiovese grapes. Food Chemistry 242: 352-361

Relative expression of linalool synthases in control and MeJA treated berries after each treatment and at four phenological stages





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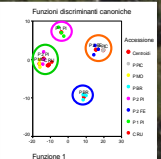
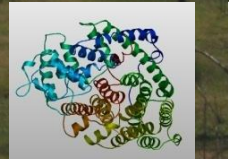
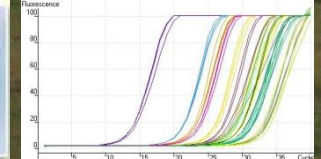
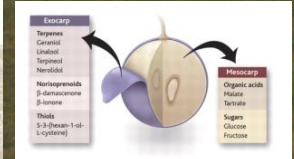
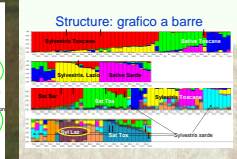
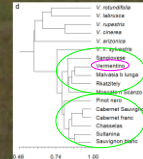
Claudio D'Onofrio

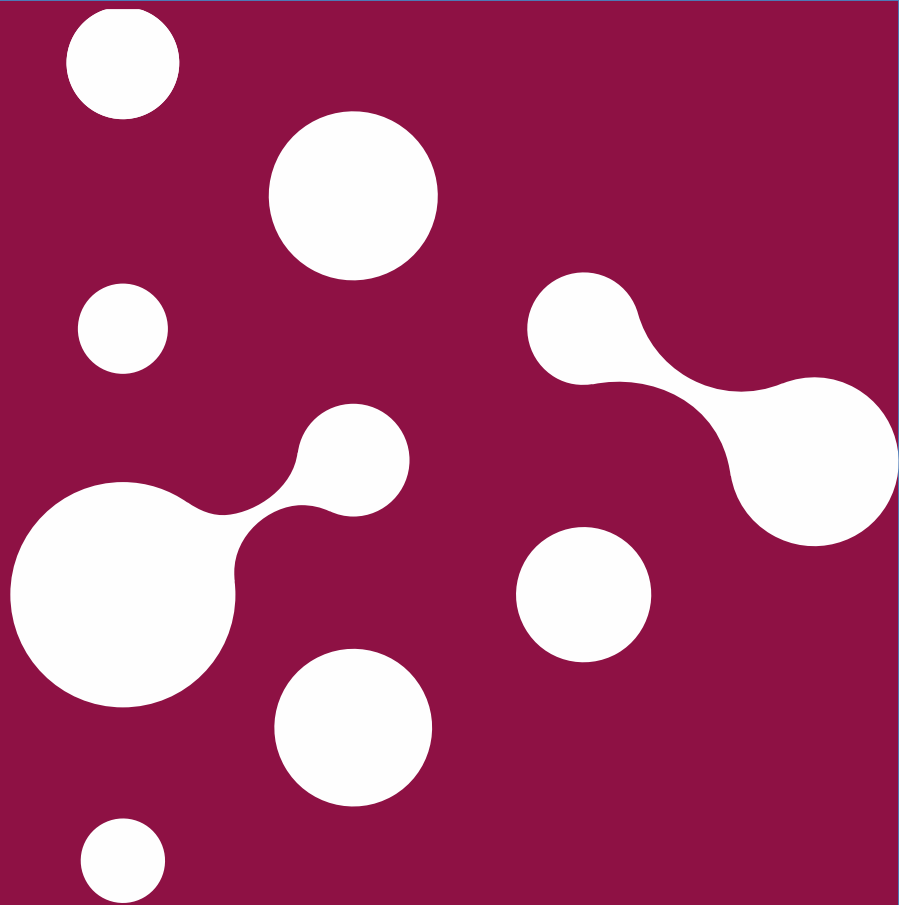
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