

Supplementary Materials

Insight on tannin extraction and mechanical changes during maceration from skins and seeds of Italian red grape varieties

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Table S1. Grape characteristics of density sorted berries.

Variety	°Brix	pH	Total acidity	Berry weight	Skin weight per berry	Seeds weight per berry	Number of seeds per berry
	°	-	g/L as tartaric acid	g	g	g	-
Aglianico	21.8±0.1	2.95±0.01	11.3±0.1	2.06±0.01	0.22±0.04	0.08±0.01	2.01±0.10
Nebbiolo	23.4±0.1	3.19±0.01	6.8±0.1	2.10±0.01	0.20±0.06	0.07±0.01	2.49±0.10
Primitivo	22.2±0.1	3.33±0.01	6.5±0.3	2.84±0.01	0.37±0.05	0.07±0.01	1.42±0.20
Sangiovese	22.1±0.1	3.45±0.01	5.4±0.1	2.49±0.02	0.32±0.01	0.09±0.01	2.48±0.30

Brix, pH, and total acidity were analysed on the must obtained from 100 g of density sorted berries; Berry weight was calculated on 100 berries; Skin weight, seeds weight and number were calculated considering all the berries used in the potential and wine-like extractions.

Table S2. Tannin composition of skins and seeds potential extracts.

		Skins					Seeds				
		Aglianico	Nebbiolo	Primitivo	Sangiovese	Sign	Aglianico	Nebbiolo	Primitivo	Sangiovese	Sign
%C-term	% w/w	89.0±4.5 a	83.8±5.8 a	63.6±1.3 c	69.9±2.8 b	**	56.3±0.2 a	53.6±1.0 ab	53.3±2.1 ab	37.8±4.2 b	**#
%EC-term	% w/w	4.1±3.6 c	4.8±6.8 c	25.7±2.0 a	13.5±2.7 b	***	30.4±1.4 c	35.4±1.2 b	32.9±1.8 bc	47.1±3.0 a	**
%ECG-term	% w/w	6.9±0.9 c	11.4±1.0 b	10.8±0.7 b	16.7±0.4 a	**	13.4±1.3 b	11.0±0.3 c	13.8±1.1 b	15.2±1.2 a	**
%C-ext	% w/w	1.9±0.4 b	-	7.8±0.9 a	1.6±0.3 b	**#	2.4±0.1 b	3.3±0.1 a	2.2±0.4 b	1.9±0.4 c	*
%EC-ext	% w/w	74.6±0.5 a	47.4±3.2 d	66.2±3.5 b	56.5±3.0 c	**	85.1±0.6 a	85.8±0.5 a	83.8±0.2 b	87.1±2.8 a	*#
%ECG-ext	% w/w	2.9±0.2 a	12.0±0.3 c	1.6±0.7 b	2.9±0.4 a	*	12.5±0.6 b	11.0±0.4 c	14.0±0.6 a	11.0±2.4 c	**
%EGC-ext	% w/w	20.6±0.8 c	51.5±3.6 a	24.4±2.7 c	39.0±3.5 b	**	-	-	-	-	
Phloroglucinolysis reaction yield	% w/w	82.0±0.6 a	78.5±0.1 b	78.5±0.7 b	69.8±4.6 c	**	91.9±0.5	92.2±0.2	92.9±0.2	92.5±4.2	ns

Values are presented as average ± standard deviation (n = 3). Sign.: *, **, ***, and “ns” indicate significant differences at p< 0.05, 0.01, 0.001, and not significant, respectively, among varieties according to ANOVA or Welch’s ANOVA (#). Values followed by different letters within the same row are significantly different (p < 0.05, according to Bonferroni LSD or Games-Howell post-hoc tests for ANOVA and Welch’s ANOVA, respectively). %C-term: percentage of catechin terminal subunits; %EC-term: percentage of epicatechin terminal subunits; %ECG-term: percentage of epicatechin gallate terminal subunits; %C-ext: percentage of catechin extension subunits; %EC-ext: percentage of epicatechin extension subunits; %ECG-ext: percentage of epicatechin gallate extension subunits; %EGC-ext: percentage of epigallocatechin extension subunits. Phloroglucinolysis reaction yield was estimated as the ratio of the sum of terminal and extension subunits on the total tannin (calculated on absorbing peak area), with both factors expressed as mg of (+)-catechin equivalents/L.