

Current status of wild grape populations (*Vitis vinifera* subsp. *sylvestris*) in Croatia

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Content of presentation:

- ✓ Literature records about wild grape in Croatia
- ✓ Current status, projects and results
- ✓ Future directions and conservation

First written records in Croatia since 1879

Vinarsko zelce, Vinarsko žleže, *Lysimachia Nummul. L. (Frey.)*.
Vinena tikva, *Cucurbita Lagenaria L. (Nov.)*.
Vinerski zelce (*Bl.*), v. Vinarsko zelce.
Viničevina (*Zag.*), Viničina (*Kalnik*), v. Vinika.
Vinik (= phoenix, *φουνξ*), palma (*Stulli*), *Phoenix dactylifera L.*
Vinika. *Vitis vinifera silv. Gmel. (Vis. Freyer, Jambr.)*, v. Vinjaga.
Vinoboja, *Phytolacca decandra L. (Panč.)*.
Vinoloza (*Vukas.*), Vinova loza, *rus. виноградъ, polj. winorosł, češ. vinový kmen, Vitis vinifera L. (Vuk, Panč.)*.
(Voda od vinove loze dobra je ženskinju za kosu, raste od toga. *Milić.*)
(Sadila Mara vinograd
i bielu lozu vinovu. *Nar. pj. Vuk.*)
(Zagonetke: Lipa krava lipova, otelila liepa sina a manita unuka. *Vuk.*)
Otac kotac, mati dropljuša, sitna djeca, al obiesna. *Slav.*)

Šulek (1879.), Croatian names: „*vinika*” or „*vinjaga*”

Bible translations into Croatian

Book of Isaiah (5, 1-7)

Croatian: „Nadao se da će uroditi groždem, ali urodi **vinjagom**”

English: „He expected to yield fine grapes: **wild grapes** were all it yielded”



Fra Bernardin Splićanin (1495) „*vinjaga*”

Description of wild grape from Herzegovina

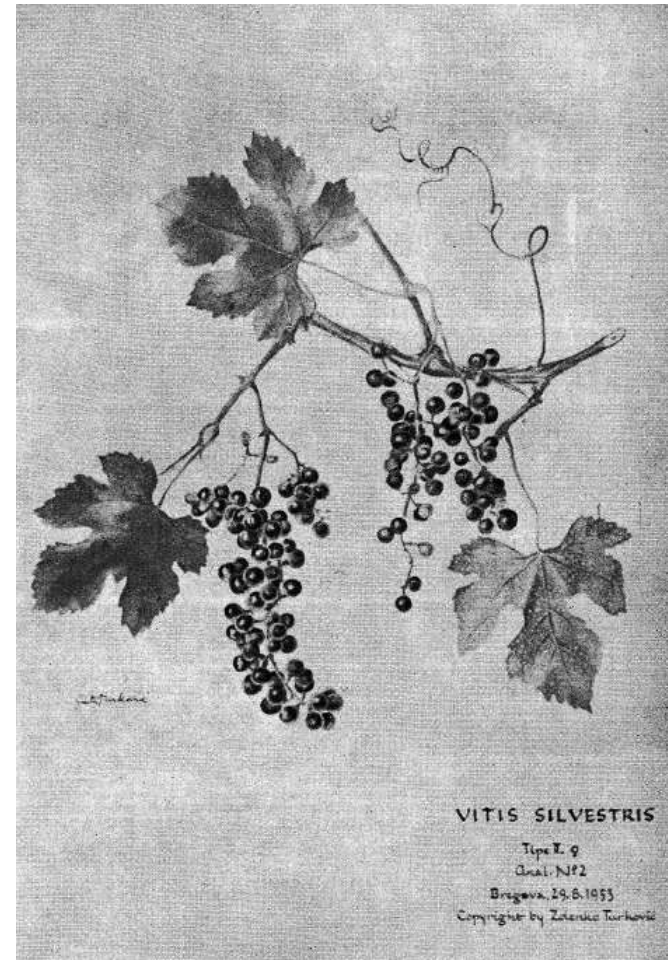
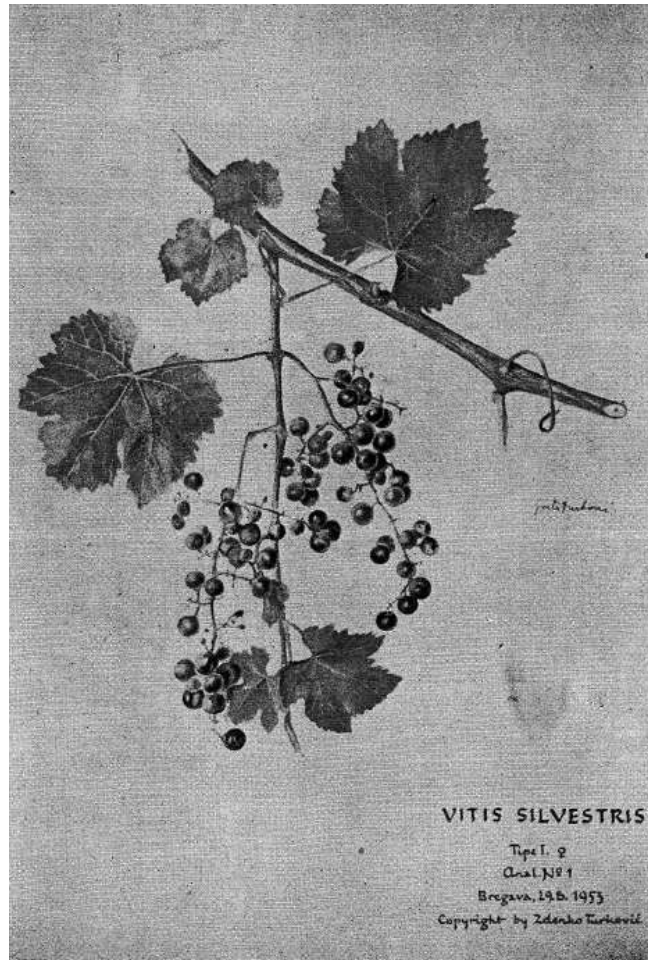
- Male and female individuals
- Blue-black color of berry skin
- **Low weight of clusters 3.5 – 33 (g)**
- 100 berries weight 43.81 (g)
- **Total titratable acidity 17.1 (g/L)**
- Etanol in wine 10.13 (vol.%)

Turković i Aničić-Bošnjak (1953.)

Turković i Sučević-Šafar (1953.)



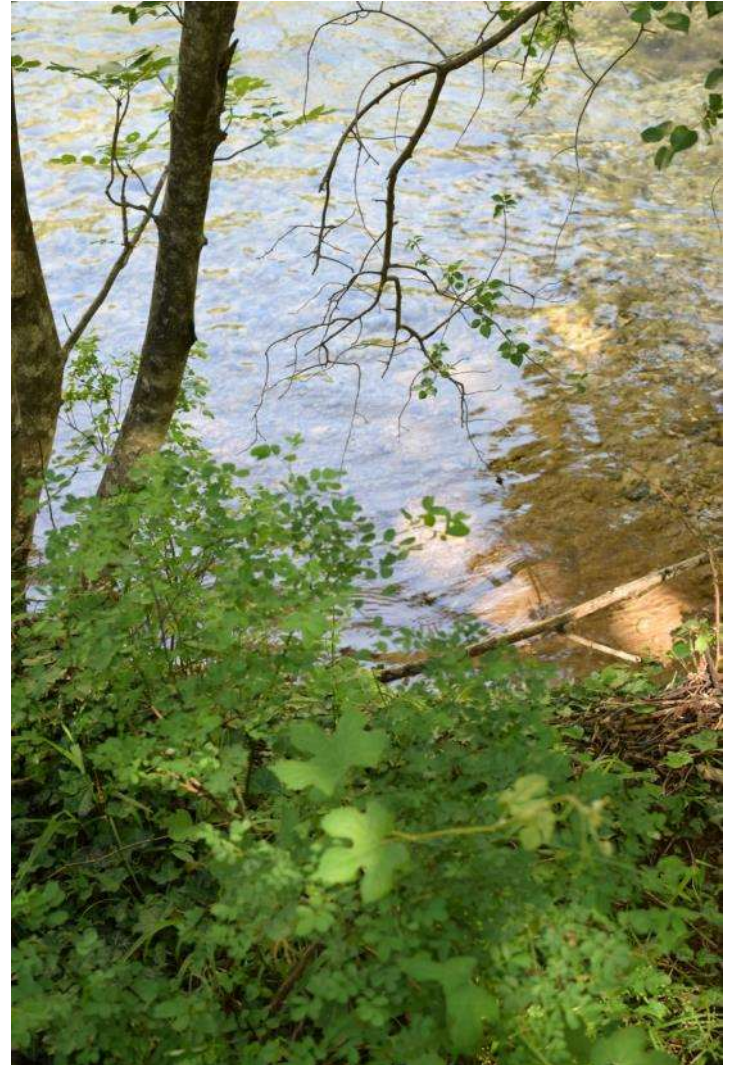
Description of wild grape from Herzegovina



Turković i Sučević-Šafar (1953.)

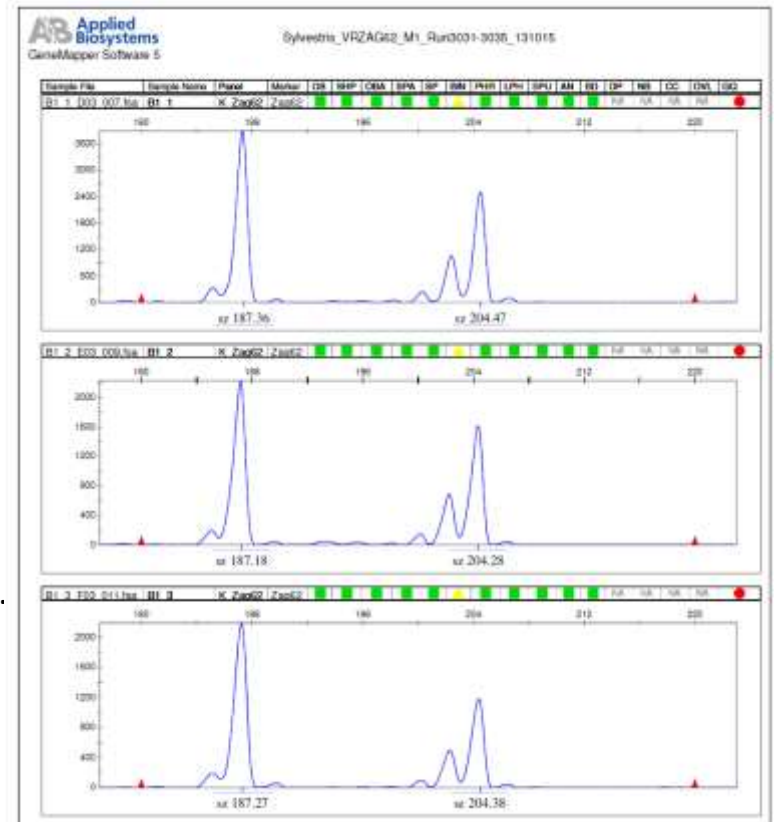
Current activities

- Projects to investigate wild grape:
- 2013-2015 Conservation of wild grape in Croatia and Bosnia and Hercegovina supported by Critical Ecosystem Partnership Fund (CEPF)
- 2015 Research of wild grape supported by Croatian Science Foundation



Project approach

- Research expedition – locating the natural populations of wild grapes along rivers and lakes
- GPS coordinates
- Morphology identification according to standard international descriptors (OIV, 2001)
- Plant communities description
- Identification of current threats and highlight of hotspot areas for this species
- SSR markers (distributed along 19 chromosomes) (Laucou et al. 2011)
- Chloroplast DNA markers (Arroyo-Garcia et al. 2006)
- Anthocyanin profiles
- Disease resistance (REN1 locus, Hoffmann et al. 2008)
- APT3 Indel; VVIB23 – flower type
- Mycorrhiza AMF communities – sequencing 18S ITS region rDNA



Distribution of wild grape



Morphology evaluation



Flower type

Male



Female



Cluster dimensions of wild grape

		Gizdavac (n=136)	Paklenica (n=32)	Imotski (n=55)	Neretva (n=168)
Cluster length (cm)	Mean	12.5	7.5	9.2	8.9
	SD	3.3	1.8	2.7	2.1
	Min	5.6	3.9	4.6	4.6
	Max	21.3	11.2	15.4	14.3
Cluster width (cm)	Mean	5.3	3.6	5.7	4.6
	SD	1.7	1.0	1.8	1.3
	Min	1.2	1.6	2.3	2.4
	Max	11.2	6.4	9.8	8.2
Cluster weight (g)	Mean	10.9	6.0	15.9	7.3
	SD	6.1	6.1	7.5	4.9
	Min	1.1	0.7	2.6	1.4
	Max	31.4	28.1	28.6	24.9
Rachis fresh weight (g)	Mean	1.0	0.6	2.1	0.7
	SD	0.5	0.5	1.0	0.3
	Min	0.1	0.1	0.1	0.19
	Max	2.2	2.7	4.1	2.0
Berries weight (g)	Mean	9.7	5.4	13.8	6.5
	SD	5.6	5.7	6.7	4.6
	Min	0.9	0.5	1.3	0.95
	Max	28.9	25.5	25.3	22.7
Number of berries	Mean	21	10	30	20
	SD	11	11	17	13
	Min	2	1	2	3
	Max	60	60	62	82

Neretva



Modro jezero



Gizdavac



Krka



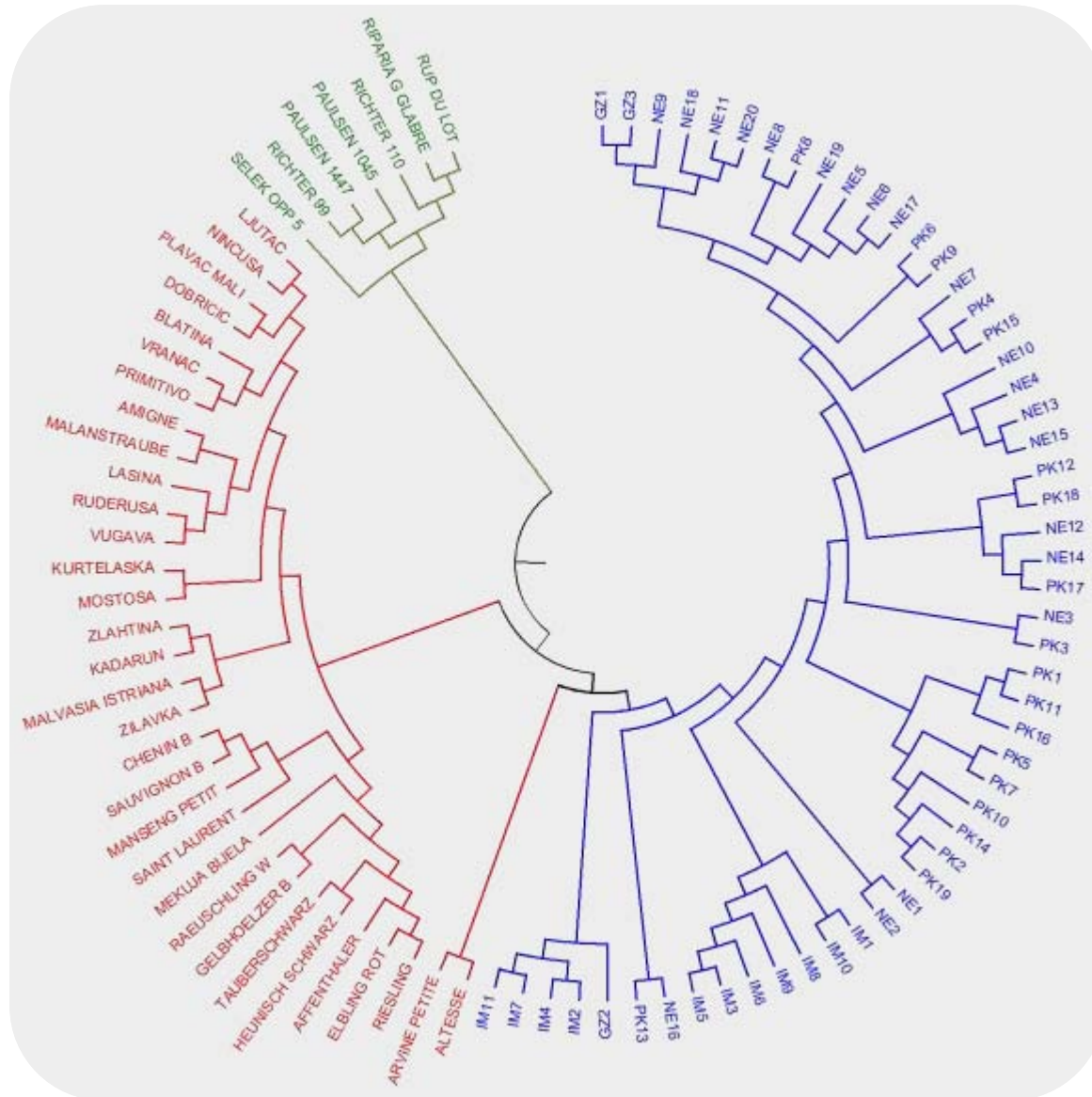
Paklenica



Psunj



Genetic relationship among wild, cultivated grapes and rootstocks



based on 21 SSR loci and $-\ln$ proportion of shared alleles distance matrix

Project impact and future directions

- Conservation of genetic variability
- Ex situ collection of wild grape at Institute
- Natural habitat, ecology – what we can learn from wild grape for commercial production – technology - understanding of **adaptability and survival** of wild grape
- Source of genetic variability for breeding: **resistance to diseases and pests, tolerance to biotic and abiotic stresses**
- **Enology, pharmacology:** wild grape as a source for color, acidity, aromas...

