



Soil as one of the Istrian terroir attributes

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The first written document of viticulture and wine production in Istria dates from antiquity, indicating a very long tradition. Istrian wines are very well known for its quality. It has been commonly accepted that quality, taste and style of wine depends on terroir, i.e. the local environment (eg. soil, bedrock, climate). Good terroirs are those permitting complete but quite slow maturation of cultivars.

Although nowadays a strong debate arises concerning the concept of terroir, mainly referring to the relationship between soil properties and wine quality, our goal was to define different soils in Istrian vineyards, to compare their composition and properties and to explain how they could indirectly influence wine quality. As Istrian Malvasia, an indigenous grapevine variety, is the most widespread cultivar in Istria (1,858.8ha, i.e. about 60% of total vineyard surface), soils on different bedrock in vineyards of these variety were chosen for investigation.

The studied vineyards, held by the three most prominent Istrian viticulturists known for high and constant quality of this sort of wine with some difference in taste and style, are as follows: (1) Monte Coronichi characterised by soil developed on Cretaceous limestone and wine of characteristic gentle fruit aroma and nice roundness and saltines; (2) Sveta Lucija characterised by soil developed on Eocene flysch and wine with fruit flavour, good body and extract; and (3) Grimalda characterised by soil developed of Eocene flysch and wine with delicate ripe fruit aroma, very good balance and saltines.

The study comprised of field soil characterization and collection of disturbed and undisturbed samples from each soil horizon, as well as comprehensive pedological, mineralogical and geochemical soil analyses.

It was determined that terra rossa soil is present on limestone at Monte Coronichi; while two different soils are developed on Eocene flysch, vertic cambisol at Sveta Lucija and eutric brown soil at Grimalda. While terra rossa has the same texture throughout profile (clay), the texture of the other two soils varies from silty clay to loam, creating conditions for better drainage. The mineral content of these soils differs significantly. Kaolinite, followed by illite, quartz and hematite dominate in terra rossa. Calcite, followed by quartz and plagioclase dominate in vertic cambisol which clay mineral content is represented by illite and swelling clays. The main mineral phases of Grimalda soil are calcite, quartz and mixed layered clays. Clay mineral content of these soils is in line with cation exchange capacity indicating higher nutrient retention in soils developed on flysch.

It should be emphasised that soil is only one of many attributes of terroir which could influence the taste of the wine. Data acquired in this investigation could be used for the appellation, i.e. a legally defined and protected geographical indication, of Istrian Malvasia.