Geopedology an ecological resource in agriculture: The case of the Alto Adige DOC wine region in Italy

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The combination of several natural component such as geography, climate, vine variety together with local cultures and winemakers, influences the wines qualities around the world. Mainly geology, geomorphology and microclimate are geographical features that can be intended as natural ecological resources of the territory. These influence the plants' biosynthetic activities and promote biodiversity and qualitative predisposition of either the vine grape and wine. Statement of the Problem: Alto Adige DOC is one of the smallest winegrowing regions in Italy (<1%), but thanks to its geographical location in the middle of the Alps, it is also one of the most multifaceted. A wide variety that brings forth a considerable dense concentration of different top wines: three on Italy's top awarded 15 in 2019. A specific investigation of the territorial conditions was required to give details on the singular environmental circumstances that favor this case. New methods of analysis and classification of the territory at vineyards scale are purposed. Findings: New approaches for applied research and decision-making in the sector of viticulture related to the mountain territory and the global warming phenomenon. The new concept of the 'Vineyards geopedological Identity' has been introduced. Innovative scientific approach to territorial data to support and share the value of territory on agricultural products. The new VGI and SRI indices allow to distinguish and parameterize geopedology and topoclimate environmental indicators. Conclusion: Through a correct classification of the vineyard identity it is possible to assess the connection between natural ecological resources, vine plant growing and wine typicity. Links between the vineyards location, vine varieties and wine's quality have been observed. Significance: the procedure and index find out to evaluate and predict wine quality can be extended to a global perspective. These are also efficient tools to evaluate abiotic stress connected to: plant physiology and biogenetic, including medical-scientific topics and plant adaption to climate change.

Recent Publications


Biography
Carlo Ferretti graduated from the Alma Mater Studiorum University of Bologna (Italy). Professional geologist since 1992 he has completed over 1,500 geological and geotechnical projects. Since 2007 he has specialized in the agricultural sector with researches and consultancy to wine producers. He concentrates his skills in the experimental observation of the abiotic stresses and ecological diversity in relation to environmental indicators and both wine wines’ quality and grape varietal adaptation to climate change. He carried out analytical studies on several vineyards worldwide and has published works and scientific articles about the Italian Alto Adige DOC wine region, evaluating the geographical indicators precursors of polyphenolic and aromatic qualitative markers on the Sauvignon Blanc, Pinot noir, Chardonnay, Gewürztraminer, Solaris blanc, Lagrein and Cabernet wines. He has work out the analysis and technical description supporting the specifications of all the new additional geographical units of Alto Adige DOC vine region.