AZIENDA AGRICOLA ROMANO

"The effects on health of Sicilian wine and an evaluation of Trans-resveratrol concentrations and other stilbene compounds; an investigation into wine-producing methods and the increase in quality of native Sicilian grape varieties".
Prof. Nicola Gebbia, Co.Ri.Bi.A. – Consorzio sul rischio biologico in Agricoltura.

The aim of the project is to evaluate through the whole wine production process the presence of chemical components such as Trans-resveratrol and Piceatonnal, substances with beneficial effects on health, and also to study the relationship between agricultural and wine-producing factors and the resulting benefits to be found in wine.

The interest in red wine developed in the 1990's from the 'French Paradox', epidemiological data from France which demonstrated lower mortality from cardio-vascular disease in spite of the fact that the French have a high consumption of animal fats, a high-risk factor for many pathologies.

A study of their eating habits showed that the only distinctive factor in the French diet was the moderate and frequent consumption of red wine.

Later it was also shown that red wine not only has a preventative effect in the case of cardio-vascular disease but also for cancer.

This preventative capacity is due to a group of substances contained in wine, known as stilbenes. The first of these to be discovered was Trans-resveratrol.

Thousands of studies have since been published on the biotic and abiotic factors that produce an increased synthesis in a vineyard. Stilbenes in vines have the function of phytoalexins, i.e. substances synthesized to defend and protect in stress conditions such as fungal infections (Botrytis cinerea, Plasmopora viticola etc.), excessive exposure to ultra-violet rays, ozone, fertilizers, fungicides, pesticides or when damaged.

Stilbenes in vines are synthesized as a constituent in woody parts such as stalks, pips, stems and roots; they are induced in softer parts such as leaves and grapeskins.

Higher quantities of stilbenes are generally found in red wines when compared to white, due to their passing from the grapeskins to the must during the maceration process of producing red wine.

The relationship existing between typical Sicilian agricultural and wine-producing factors and the level of stilbenes encountered in wine through the entire production process has been studied through high-pressure liquid chromatography (HPLC), according to Gebbia et al., 2003, supported by gas chromatography, in particular by gas mass (GC-MS).

The partial results obtained so far by investigating about one hundred different varieties of red wine produced in Sicily (including Merlot, Cabernet, Sauvignon, Syrah, Perticone,

Azienda Agricola Romano - Via Dante, 36 - 90141 Palermo - Italia
Cell. +39 3476743446 - Fax +39 091583690 - e.mail r.romano@infcom.it - P.I. 05177580825

Nero d'Avola, Sangiovese), originating from the provinces of Trapani, Palermo, Catania and Agrigento, have shown high levels of Resveraltrol in more than 90% of the samples tested, confirming the high tasting qualities of the regional product.

A very interesting result is produced by a native grape, the Perticone, which contains the highest levels of Resveratrolo and Piceatonnal. The greatest concentration of Piceatannol was 3.5 mg/L, while that of Resveratrol was 14.2 mg/L.

Bearing in mind these large amounts of stilbenes encountered in wines produced from Perticone vines, Co.Ri.Bi.A. intends to study the variation in content of these substances in the grapes and their corresponding wine to verify if the presence of such a high content of stilbenes is due to a genetic predisposition of the vine stock or to particular methods of producing the wine.

It is also intended to widen this type of research to other native Sicilian vines, assessing the differences linked to different bio-types. Measured amounts of stilbenes will be administered to all the bio-types, nearly 450, and eventually genetic analyses will be carried out on those native vine stocks reputed to be the oldest in the region of Sicily.

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