



Anthocyan dyes

Description

The quality of a red wine is determined, among other parameters, by the coloring intensity. The anthocyan colors are responsible for the red to purple color. Their composition is depending on the type of grape. In the recent past the composition of coloring is used for the grade purity of a wine but this classification is discussed controversially between analysts and cultivation researchers.

In the practice this analysis differs absolutely from the determination of sugars or organic acids. The last ones are made in an isocratic mode, it means that during the separation the composition of the eluent is not changed. Because of the different chemical modification of anthocyan, the composition of the eluent must be changed during the separation from hydrophilic to hydrophobic character. This type of elution behavior is called "gradient elution".

The strong points of the methods

The anthocyan to be found in the peel of grape and in the finished wine are glycoside of delphinidin, cyanidin, petunidin, peonidin and malvidin. The anthocyanidin-3-glucosides are classified in the group of the non esterified anthocyan. Malvidin-3-glucoside, as main component among them, represents a share of > 40% in wine.

Besides these free anthocyan you can also find some other anthocyan that are principally esterified with acetic acid or p-cumaric acid. They are called acetates or cumarates. In the wild wines as well as in the cross breeding between European cultivated grapes and American grapes, the so called "hybrids", you can find besides monoglycosides also anthocyanidin-3-4-diglycosides.

From a red wine spectrum you can get information not only about the purity of the type of grape with regards to hybrids but also about the type of vine itself. A pure Spaetburgunder doesn't show any acylated or cumarylated esters in the colouring spectrum. In the spectrum of a Dornfelder you can clearly see these esters. In the case of a Spaetburgunder (Pinot Noir) the testing authorities tolerate up to 3% share of ester because such a small quantity can reach the pure wine through the filtering system.

The German wine law allows a wine to be produced with a blend share of max. 15% (in case of addition of grape juice up to 25%) without any declaration. It is possible to determine an addition of Dornfelder in a Spaetburgunder with a comparison of the chromatograms.

In fig. 1 and 2 a Spaetburgunder with an addition of 10% Dornfelder and a pure Dornfelder are shown. In the first half up to about 32 minutes you can only see the monoglycosides with the malvidin as the highest peak, from 34 to 45 minutes the acylated and afterwards the cumarylated anthocyanins.

Literatur: Holbach, B.; Der Deutsche Weinbau **10** (1998) 60

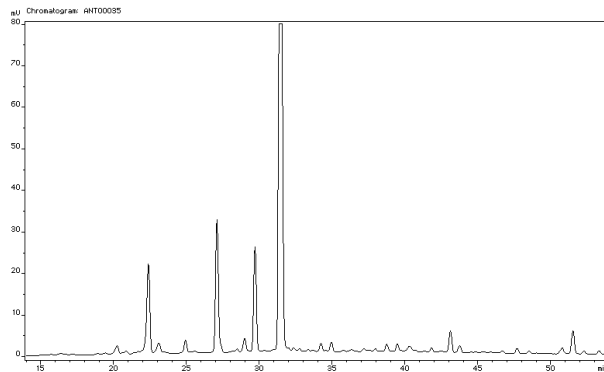


Fig.1 Anthocyanins spectrum of a Spaetburgunder with an addition of 10% Dornfelder

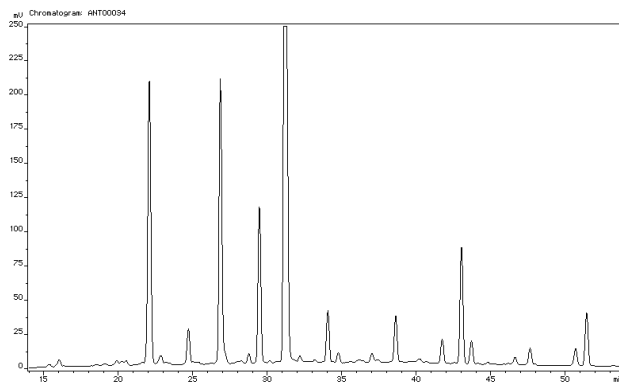


Fig.2 Anthocyanins spectrum of a Dornfelder

Ordering Information

Art.-No.	Short description
458-190.005	complete system for determination of anthocyanins dyes in wine
969-190.114	pre-column cartridges 4,6 x 10 mm (5)
969-190.203	special main column 150 x 4,6 mm
969-190.112	cartridge holder
969-190.115	cartridge holder (sleeve nut with holder and union)
969-190.320	SS sieves, 5 µm (10)
969-190.321	Teflon seals (10)
969-190.325	glass fiber filters (10)
969-190.332	SS frit 1,9 mm with PEEK ring 0,25" OD
969-190.333	SS frit 4,6 mm with PEEK ring
969-190.340	capillary connection piece 25 cm
969-190.341	capillary connection piece 10 cm
969-195.425	PEEK capillary 1/16" x 0,25 mm
969-195.522	PEEK finger tight fitting
189-7750-038	stator for injection valve 7739 (new)
189-7750-016	rotor seal for injection valve 7739
458-195.038	stator for 7739 – replacement part -

We reserve the right to change specifications, design or price without advance notice.

