New tools for monitoring grapes quality: sensors, data analysis, decision
SPECTROSCOPIE PAR REFLECTANCE

REFLECTANCE SPECTROSCOPY

Laura Rustioni
The technique could be adapted to different equipment.

...Rapid & low cost...

Jaz System (Ocean Optics, B.V.) Spectrometer
PRINCIPLE:

Electrons of pigmented molecules can be exited by specific quantities of visible radiative energy, resulting in specific absorption bands.

Thus, the optical properties (such as reflectance) of a material is related to its chemical composition.

RED PIGMENTS
ANTHOCYANINS

GRENN PIGMENTS
CHLOROPHYLLS

Multiplicative inverse normalized at 800 nm

BROWN PIGMENTS

OXIDISED PHENOLICS

Rustioni L., Milani C., Parisi S., Failla O., 2015. Chlorophyll role in berry sunburn symptoms studied in different grape (Vitis vinifera L.) cultivars. Scientia Hort. 185, 145–150.

sunburn VS ripening
Drought modifies the tissue reflectance

NON-PIGMENTED COMPOUNDS

HYDROPHOBICITY INDEX

...NEW ROOTSTOCK SELECTION?

NON-PIGMENTED COMPOUNDS

STARCH RESERVES

Multiplicative inverse normalized at 900 nm

NON-PIGMENTED COMPOUNDS

DROUGHT EFFECT

unpublished
LEAF COLORS

MINERAL DEFICIENCIES

?...

...FERTILIZING MANAGEMENT...

...next step...
grazie