

# **Master of Science Viticulture & Enology**

Joint Diploma “Euromaster Vinifera” awarded by:

INSTITUT NATIONAL D’ETUDES SUPERIEURS AGRONOMIQUES DE  
MONTPELLIER  
AND UNIVERSITA DEGLI STUDI TORINO

**Master Thesis 2017**

**“Comparative Analysis of the Polyphenolic Compounds in  
Selected Grape Varieties of Northern Italy”**

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## **Abstract**

The phenolic composition of a wine is a key quality parameter, with special interest in the subgroups of flavanols and anthocyanins. Here, a comparison between *Vitis vinifera* cv. Nebbiolo, Raboso Piave, and Sangiovese from central and northern Italy is presented. Samples sets for the 3 varieties as well as a selection of Raboso Piave from previous vintages, ranging from 2009 to 2015 were analysed. Basic chemical parameters were assessed with FTIR spectrometry and the phenolic profile analysed by spectrometric assays developed by Di Stefano and coworkers as well as standard OIV procedures. Total flavonoids / phenolics, proanthocyanidins, monomeric/oligomeric flavanols, total anthocyanins, and monomeric anthocyanins were quantified. PCA was able to distinguish Nebbiolo as a variety with a particular profile characterised by high contents of total phenols especially flavanols and low amount of coloured matter. These result were confirmed with ANOVA analysis showing significant differences in phenolics between varieties. Further Total phenols were correlated closely with levels of flavanols, whereas anthocyanin parameters were not correlated to each other or any phenolic parameter. The results represent a contribution to the information gathered by the “National Project: Tannins in Italian Red Wine” (PRIN) project trying to establish a database for Italian tannin diversity.

