

ABSTRACT

An investigation presented was concern to measure and evaluate the total antioxidant capacity (TAC) in samples of red wine clarified with four fining agents (polyvinylpolypyrrolidone and three different types of gelatin). All wine samples were treated by concentrations of 10, 20 and 40 g/hL of finings. The main aim was to discover how the particular agents in different dosages influence the TAC. The second part describes relations between changes in TAC in content of single antioxidant components (total polyphenols, anthocyanins, gallic acid and simple phenols). Total antioxidant capacity in red wine samples was evaluated using the Trolox equivalent antioxidant capacity assay (TEAC).

A theoretical part of the thesis briefly summarizes basics about luminescence, focused on chemiluminescent reaction. Theory of free radicals and antioxidants, especially those included in red wine are also described. Process of winemaking aimed at fining is also contained in this part.

An experimental part describes techniques of determination of the total antioxidant capacity, principle of chemiluminescent assay based on the luminol/peroxidase system.

The results show the different behaviour of gelatin from the polyvinylpolypyrrolidone (PVPP). In general gelatin tends to reduce TAC, whilst PVPP tends to act vice versa. The differences in TAC between samples containing different amounts of finings were insignificant. The comparison of TAC with amount of various antioxidant components in the samples showed that antioxidant capacity is related to the total polyphenol content. Relations between contents of anthocyanins, gallic acid, low-molecular phenols and TAC weren't proved.

In terms to save the total antioxidant capacity in wine, PVPP was proved as a good treatment; even the concentration 40 g/hl retains the values of the TAC and the PPT.