ANTHOCYANIN AND TANNIN OPTIMIZATION IN ISABEL GRAPE JUICE BY POST-HARVEST ULTRASOUND APPLICATION

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Alimentation rich in phenolic compounds like anthocyanin and tannins is generally associated to beneficial effects to the consumer health. The production of these compounds happens as a defense of the plant against stress factors. The ultrasound is capable of stimulating the production of phenolic compounds in some vegetal tissues, due to this mechanical stress caused. In significant quantities in the grape, the phenolic compounds are also present in the grape juice, however, some procedures done during its elaboration interfere in the final quantity of these compounds. Therefore, this work aimed to evaluate the effect of the ultrasound application in Isabel grapes on the content of total anthocyanin and juice tannins. Through an ultrasonic probe, a 113 W cm$^{-2}$ power density of ultrasound was applied in 1000g of grapes, harvest 2011, during 10 minutes. After 5 days of incubation, it was performed the juice elaboration by the Flanzy method, with sonicated and not sonicated (control) grapes where then the total anthocyanin and tannin levels were analyzed. The ultrasound increased 159% the content of total anthocyanin (0.399 g L$^{-1}$) and 75% the tannin (5.7 g L$^{-1}$) in relation to the control juice (0.154 g L$^{-1}$ e 3.5 g L$^{-1}$, respectively). This increase can result from the induction of the fruit defense metabolism in answer to the stress caused by acoustic cavitation, altering the permeability of the cellular membrane and the development of oxidative explosion process. This way, the ultrasound allows the elaboration of healthier grape juices and with a greater commercial appeal.