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EFFECT OF DRYING AND FREEZING PRE-TREATMENT UPON SOUR CHERRY (*PRUNUS CERASUS*) BIOACTIVE COMPOUNDS

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Sour cherry (*Prunus cerasus* L.) is a phenolic rich fruit containing substantial quantities of anthocyanins. The Iberian Peninsula (the eighth European producer) has 1397 ha dedicated to sour and duke cherry production and harvests 2610 metric tons of fruit per year. In Portugal, the main sour cherry-producing area is the Óbidos region. In this region, all sour cherries are harvested by hand, at the firm-mature stage to reduce bruising, between late June and early July. However, and despite all the forethought put into preserving fruit quality, sour cherries quality rapidly decays with the softening of its texture and loss of organoleptic properties. In order to bypass this problem producers have taken to freezing, which only slows fruit decay, or to immediately process sour cherries into foodstuffs (e.g. Ginjinha – a traditional Portuguese liquor). In this work we evaluate the potential of drying sour cherry as a means to develop new foodstuffs and to storage the fruit. This assessment was performed through analysis of the evolution of its phenolic composition over drying time. Simultaneously the application of a pre-treatment (passive and fluidized bed freezing – treatments that would slow decay in the time lag between harvest and processing) was studied to address the impact on fruit composition over drying. The results obtained showed that freezing before drying allows for a better preservation of the total phenolics (with a degradation of 25% of total phenolics for non-processed fruit opposing to the 2-10%, for both freezing methods used). A similar trend was observed for individual compounds analysis, *i.e.* freezing before drying seems to be the best option when considering the preservation of phenolic compounds. However, an exception was observed for chlorogenic, since fluidized bed freezing allowed for a better preservation of the compound, while the passive freezing other led to its reduction to bellow the detection limit). On the other hand, while neochlorogenic acid did not show significant differences after 6 days of drying; it is interesting to note that, despite this result, at 2 days of drying the pre-processing appeared to possess some advantages.

Overall, freezing before drying appears to be an advantageous alternative as it allows for, not only the preservation of this highly perishable fruit but also for a better preservation of its bioactive constituents.