WATERMELON (*Citrulus lanatus*) JUICE CRYOCONCENTRATION AND IMPACT ON ITS LYCOPENE CONTENT

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Watermelon (*Citrulus lanatus*) juice is a rich source of carotenoids, namely lycopene a phytochemical responsible for its red color. Cryoconcentration is a natural phenomenon which occurs during the ice thawing. More concentrated phase is then separated from the initial solution. The use of cryoconcentration technology in the bio-food industry makes it possible to obtain products of high nutritive, biological and sensorial value, due to the low temperature required by the process. The aim of this study was to concentrate watermelon juice by cryoconcentration technique and evaluate the effect of this technology on the lycopene content. Freshly squeezed watermelon juice was subjected to cryoconcentration process with freezing temperature of -18 ± 2º C and defrosting temperature of 20 ± 5º C. The procedure was achieved in three stages. Each concentrate of a preceding stage was used as initial solution for the following cryoconcentration stage. The concentrated and ice fractions were analyzed at each stage. Cryoconcentration stage effect was highly significant (*p* < 0.0001) in the total soluble solids content, which increased from 8º Brix up to 31,5º Brix. The same pattern was observed in the lycopene content (*p* < 0.001), which increased from 22.26 ± 0.08 µg/g up to 43.52 ± 1.18 µg/g. In addition, it was observed that concentration efficiency of the process also increased by increasing the cryoconcentration stage. This study shows that cryoconcentration is an effective method to concentrate watermelon juice and its bioactive compound lycopene.