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ANTIOXIDANT ENRICHMENT OF CRANBERRY JUICE BY ELECTRODIALYSIS WITH FILTRATION MEMBRANE: IMPACT OF PROCESS ON JUICE COMPOSITION

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ABSTRACT Cranberry is recognized for its high antioxidant potential and its nutraceutical properties. So, the enrichment of a cranberry juice with functional phytochemicals, such as anthocyanins and proanthocyanidins, would be particularly interesting for the nutrition-health market. Indeed, in the past years the nutrition-health market has known and still knows an incredible continuous increasing development. Hence, the food industry is looking for innovative technologies for the production of new products in order to answer consumer demands for healthy products. Recently, it was demonstrated that it is possible to enrich a cranberry juice in antioxidants from another cranberry juice by an electrodialysis with filtration membrane (EDFM) process (Figure 1). The objectives of this work were to study, during consecutive EDFM treatments, the evolution of raw and enriched cranberry juices composition as well as the ED parameters. The anthocyanin concentration and the antioxidant capacity of the enriched juice increased respectively of 19.41% and 23.74%, while the anthocyanin concentration and antioxidant capacity of the feed juice remained constant throughout treatments. Proanthocyanidin concentration of both juices also remained constant which suggests that the duration of treatments was too short to allow the migration of these molecules. However, enriched juice concentration with decreased citric and malic acids resulted in a significant decrease of its astringency.

Keywords: Cranberry, electrodialysis, filtration membrane, anthocyanins, organic acids, antioxidant capacity.

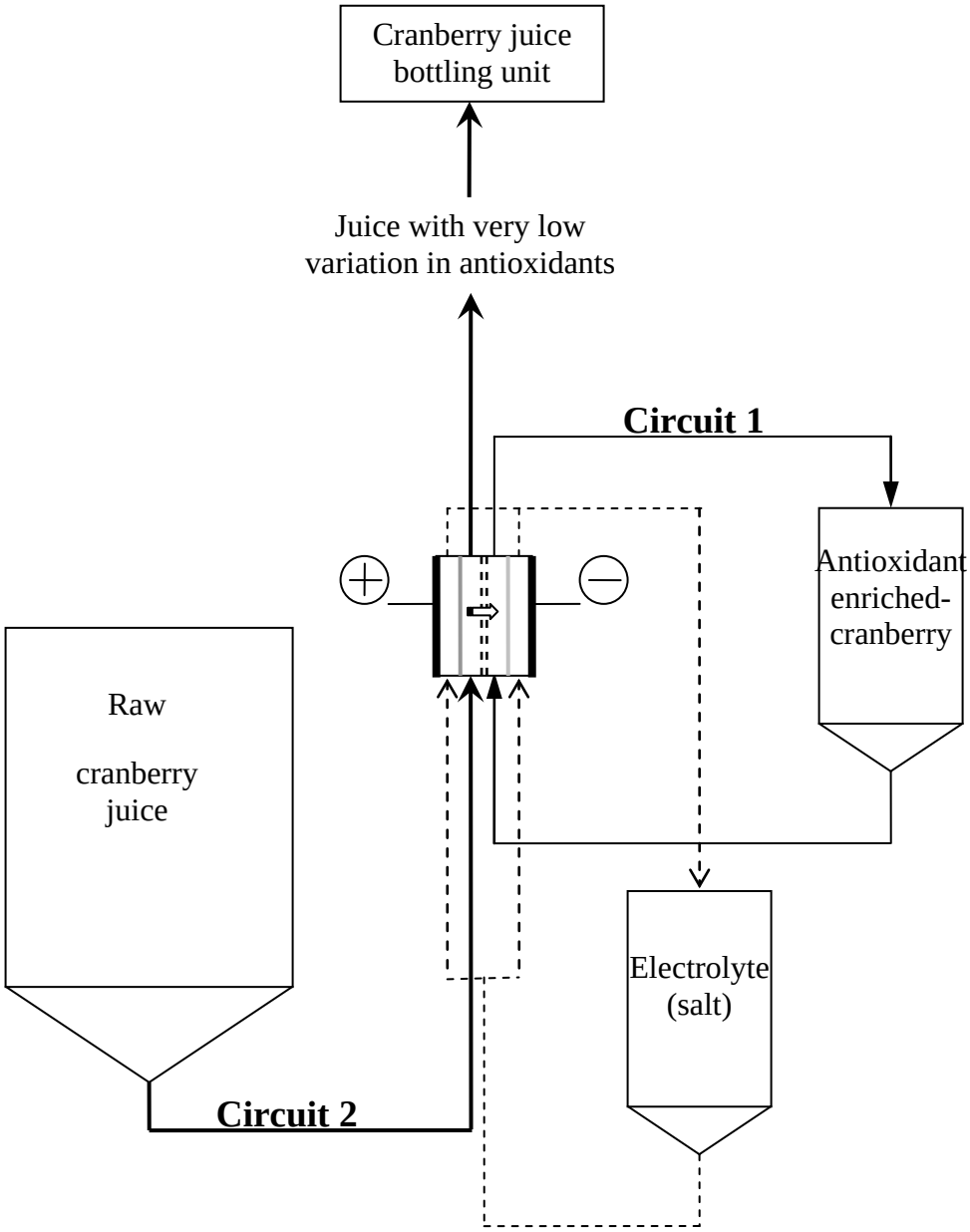

Figure 1 : Schematic flow diagram for the production of antioxidant enriched-cranberry juices.