EFFECT OF CHEMICAL AND PHISICAL PRETREATMENTS ON DRYING OF WHOLE TOMATO FRUIT (DATTERINO TOMATO)

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The tomato “Datterino” is a new tomato hybrid of small size derived from an interspecific cross between *Lycopersicon lycopersicum, Lycopersicon pimpinellifolium* and *Lycopersicon chesmanii*, that was recently introduced on the market, arausing great consumer interest for its consistency and degree of sweetness. The Datterino consumption is mainly fresh while, processed products like concentrated juice and pulp needs high-cost technology for good quality products. Therefore, development of low-cost processing methodologies to produce shelf-stable products is the first objective to satisfy both the competitive market and consumer demand. Food drying is a most important process for preserving agricultural products which allows safe storage over an extended period. Nowadays, diverse drying techniques like hot-air drying, solar-tunnel drying, microwave drying, and freeze-drying are among the novel and sophisticated methods proposed for to dry and preserve tomatoes. However, all the drying processes applied to tomatoes, due to the low moisture permeability of peel, involve cutting or peeling the fresh tomatoes that affect negatively the organoleptic and nutritional qualities during the drying phase.
This work aims to evaluate the effect of different superficial pretreatments (sunflower oil / K_2CO_3 solution, sunflower oil / $KHCO_3$ solutions and hexane) to remove the wax on the peel surface of the tomato with the aim to dry whole tomatoes quickly preserving the organoleptic and nutritional qualities.
For drying, two different temperatures (40 and 50 ° C) and two different technologies (static drying and hot air flow) were compared for each superficial pretreatment. Drying speed, color, rehydration capacity and carotenoid content were evaluated. Preliminary results showed that sunflower oil/K_2CO_3 solution is the most effective pretreatment to remove wax from tomato skin and accelerate drying, even whole dried fruit showed greater rehydration capacity than samples treated with other solutions. Hot air flow drying technology was faster than static drying. Moreover, the high drying temperatures favor a greater biodisponibility of the carotenoid while the low temperatures preserve the color of dried tomato.