

# Dehydration of Concentrated Tomato Juice: Nutrient Composition and Organoleptic Qualities

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## ABSTRACT

Tomato is a most popular and demanding vegetable grown in the tropics. The postharvest loss of tomato is estimated to 40-60%, which eventually contributes to high market prices. There is a great potential to use instant tomato powder in formulated drinks, baby foods, soups and other products. Therefore, a study was conducted to produce tomato powders using foam mat drying, spray drying and vacuum drying and to evaluate the quality characteristics of the tomato powder. A consumer preference test was conducted to determine the sensory attributes of the reconstituted tomato juice and to compare the final product with the commercial products. The moisture content of tomato powder ranged from 1.73 to 3.57% on dry weight basis. The moisture content of the spray dried powder was lower than that of foam mat dried powder. During drying, a significant reduction ( $p < 0.05$ ) in titratable acidity of 23% and increase in pH of 0.62 units after vacuum drying of tomato juice indicated that some acids were lost due to evaporation during drying. The oxidative loss of ascorbic acid following vacuum drying was 22.7% which was higher than following foam mat drying (11.6%) and spray drying (8.26%) with 70% Tomato solids + 30% Maltodextrin. Ready-to-serve (RTS) tomato nectars were prepared from fruit powders and were compared with those prepared from fresh juice. Maltodextrin proved to be the effective additive, reducing the wall deposition markedly and producing a product of acceptable flavour and with good free-flowing properties. The foam mat drying is an expensive method to apply commercially, therefore, spray drying may be the best alternative for producing tomato powder with good stability. Keywords: Physico-chemical qualities, maltodextrin, sensory analysis, spray drying, tomato powder.

**Keywords:** Maltodextrin, Physico-chemical qualities, Sensory analysis, Spray drying, Tomato powder