

RESEARCH PROJECT



Influence of Processing on Quality Parameters of Strawberries

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Description To determine the effects of different processing steps, such as enzymatic treatment of the mash and pasteurization, on selected quality parameters, strawberries were processed to juices and purees. To identify the processing steps causing the highest losses, samples were taken after each step, and ascorbic acid, total phenols, anthocyanins, and antioxidant capacity were analyzed. To assess the antioxidant capacity, three different methods were applied: the trolox equivalent antioxidant capacity (TEAC), the ferric reducing antioxidant power (FRAP), and the 2,2-diphenyl-1-picrylhydrazyl (DPPH) assay, showing correlation coefficients of 0.889 to 0.948. The antioxidant capacity decreased with processing steps except heat treatment, which partly caused an increase due to the formation of antioxidant active products. The content of ascorbic acid, in comparison to that in the frozen strawberries, decreased significantly during the processing of the fruit to puree by 77%. In the pressed cloudy juices, the loss of ascorbic acid was 37%. The decline of phenolic compounds, measured as total polyphenols and anthocyanins, was smaller (between 30-40%). Pressing and pasteurization were the most critical steps for the decrease of these compounds. The enzymatic treatment of the mash within 90 min supported the release of secondary plant metabolites, while ascorbic acid is reduced up to 20%.

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