

ABSTRACT

Master Thesis

EFFECT OF SO₂ CONCENTRATION ON THE CHANGES OF SUGAR, AMINO ACID, HMF AND FUROSIANE CONTENTS IN DRIED APRICOTS DURING STORAGE

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In this study, the changes in physical and chemical properties of dried apricots (*Hacıhaliloğlu* cultivar) containing different SO₂ concentrations (0, 451, 832, 1 594, 2 112 ve 3 241 mg/kg) and stored at different temperatures (4°, 20° ve 30°C) for 379 days were investigated. Furocine, HMF, sugar and amino acid analyses were carried out by HPLC. Depending on the increase in SO₂ concentration, total sugar ($r=-0.897$), sorbitol ($r=-0.961$), and furosine ($r=-0.893$) contents, and browning ($r=-0.930$) and pH ($r=-0.867$) decreased, while glutamic acid ($r=0.916$), glucose ($r=0.716$) and fructose contents ($r=0.893$), and titratable acidity ($r=0.993$) increased in SO₂ containing dried apricots. These findings clearly showed that SO₂ concentration had significant effect on sugars in dried apricots.

During storage, the effects of apricot composition on the browning of non-sulfitted and sulfitted dried apricots were different. Since it was determined that sugar (fructose, sucrose and total sugar) and amino acid (glutamic acid, alanine, valine ve total amino acid) contents had "strong-very strong" impact on the browning of non-sulfitted dried apricots ($r=0.739-0.917$), the correlations among these two component groups were examined. "Strong" correlations ($r=0.681-0.927$) were determined between fructose and amino acid contents (aspartic acid, glutamic acid, valine, alanine and glycine contents). Considering the strong correlation between the HMF and browning in non-sulfitted dried apricots ($r=0.962$); it was easily seen that Maillard reaction had a "strong" effect on the browning in non-sulfitted dried apricots.

Unlike non-sulfitted dried apricots; only glucose ($r=0.666$) among sugars and only valine ($r=0.684$) among amino acids affected brown color formation at an "intermediate" level in sulfitted-dried apricots. In these samples; a "strong" correlation ($r=0.000-0.562$) could not have been found between the change in sugar and amino acid contents. Since the strong correlation could not also have been found between HMF and brown color formations, it was concluded that Maillard reaction affected brown color formation in sulfitted-dried apricots at an "intermediate" level.

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