

PHYSICO-CHEMICAL AND OXIDATIVE STABILITY OF FUNCTIONAL DARK CHOCOLATE ADDED OF PHYTOSTEROLS

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Phytosterols can reduce serum total and LDL (low-density lipoproteins) cholesterol. However, they are susceptible to oxidation. The phytosterols oxidation products could have toxic effects on human and animal organisms similar to those of cholesterol oxidation products. Thus, the objective of this study was to evaluate the physical-chemical and the oxidative stability of dark chocolate added of phytosterol during two months of storage at 20 °C and 30°C. It was formulated three dark chocolates: PLAC- placebo group (without phytosterol), PHYT- phytosterol group (2.0 g/unit) and PHAN - phytosterol + natural antioxidants (tocopherol and ascorbate). It was evaluated instrumental hardness, color, hydroperoxide concentration, fatty acids composition and sensory acceptance analyzed by 30 no-trained volunteers using a hedonic scale. Hardness of PLAC did not change after two months, while PHYT and PHAN showed a tendency to decrease this parameter. Color L* (lightness) significantly decreased in all formulations ($p < 0.05$) after two months due to the fat bloom occurrence. No differences were observed on oxidative stability evaluated by hydroperoxide concentration. Sensory acceptance scores were similar to the three formulations. It can be suggested that the phytosterols addition to the formulation reduces hardness but has no effect on oxidative stability, sensory score and color of the dark chocolates during two months of storage in both temperatures.