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Physical Parameters of Chocolate with the addition of Spirulina Platensis

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The physicochemical properties of chocolate mass with 85% cocoa content and respectively content of 3%, 5%, and 10% of freshwater algae Spirulina Platensis have been studied. The algae are grown into a bioreactor in Varvara, Bulgaria. The present work aims to create an innovative chocolate product with appropriate physicochemical properties and organoleptic characteristics, contributing to the healthy nutrition of consumers. To achieve this goal, it developed a technological scheme for obtaining chocolate mass with Spirulina Platensis. Rheological, X-ray structural, and sensory analyses were performed. Data from reflective microscopy and fluorescence spectroscopy were also obtained. X-ray analysis shows peaks of crystalline sucrose and cocoa. In addition to these peaks in the X-ray diffraction pattern of the sample with 10% Spirulina Platensis content, some peaks may be due to complex crystals of the protein structure of freshwater algae.

The rheological curves of the samples show that the studied systems are non-Newtonian fluids. Increasing the concentration of Spirulina Platensis does not affect the stickiness, softness, and hardness. According to sensory analysis, the samples with 5% Spirulina Platensis have a pronounced sweet taste, and those with 3% - cocoa taste. Reflective microscope images were taken to examine the fracture section.

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