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INTEGRATION OF EMERGING TECHNOLOGIES IN AMAZONIAN FRUIT PULP PROCESSING

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Studies indicate that foods containing bioactive compounds have generated significant interest due to their rich content of antioxidants, polyphenols, anthocyanins, and other elements. These compounds play a fundamental role in physiological processes, reducing the incidence of non-communicable chronic diseases such as cancer and cardiovascular diseases. Additionally, they stimulate the immune system and contribute to the prevention of various comorbidities. Fruits from the Amazon region stand out for their high concentration of these compounds in their nutritional composition, leading to an increased demand for these foods as part of a healthier diet. However, many of these fruits are still poorly known and underutilized economically in the region. A common example of consuming these fruits is the production of juices, which typically undergo a pasteurization process in the food industry. Pasteurization involves high temperatures, reaching up to 80°C, to inactivate pathogenic microorganisms and undesirable enzymes. However, this process often results in sensory and nutritional losses, affecting volatile compounds responsible for aroma and flavor, as well as some heat-sensitive vitamins. As an alternative to traditional thermal methods, emerging (non-thermal) techniques have been developed and studied, including applying pulsed electric fields, high hydrostatic pressure, pulsed light, ultrasound, irradiation, ozone, and plasma. Compared to heat processes, these technologies offer benefits such as processing at low temperatures, lower energy consumption, and the preservation of nutrients and flavor, maintaining characteristics like fresh products. Additionally, these techniques allow for the elimination of microorganism spores and enzyme inactivation, contributing to food quality and safety.

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