Stability of anthocyanin during processing, storage and simulated digestion of purple sweet potato pasta

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Abstrak

Purple sweet potato is rich in anthocyanin giving a potential application in food product development. However, anthocyanin is relatively unstable and easily degraded during processing and storage. Understanding the stability and bio-accessibility of anthocyanin during processing, storage and simulated digestion is very important. The study aimed to investigate changes in anthocyanin degradation during processing, storage and simulated digestion of purple sweet potato pasta. The pasta was prepared through several processing steps, i.e. steaming the tuber, steaming the dough formula, extrusion, drying and boiling. Anthocyanin was analyzed at every stages of processing and storage of the pasta. The durability of the pasta during storage was analysed using an accelerated shelf-life testing method at 30, 40 and 50ºC for 28 days. The study showed that anthocyanin content decreased during the whole stages of processing and storage, but slightly increased during steaming. The highest loss of the anthocyanin occurred in the boiling process. Based on resistance to stomach and intestinal conditions, the bio-accessibility of anthocyanin was better in the digestive system in the stomach than that in the intestines. The increased anthocyanin appeared again in the colon. This study provides useful information for designing an effective method to minimize an extensive loss of anthocyanin of purple sweet potato for food product development.