Effect of Drying Methods on Functional Compounds and Their AntioxidantActivity of Purple Flesh SweetPotato（PFSP）

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ABSTRACT

The goal of this study was to investigate the effect of different drying conditions on the functional compounds and antioxidant activities of purple-flesh sweet potato(PFSP). The physical properties and chemical composition of the powder of PFSP were also determined. Fresh PFSPs were peeled, blanched and cut into cubes, then dried by oven or freeze-drying to get the powder for analyses. The pigments of PFSP powder were extracted by the water or ethanol or methanol and its functional compounds and antioxidant activities were determined. The results were shown as the follows:

Anthocyanins, total polyphenols and carotenoids contents were approximately 0.0051-0.7563（μmole/g）, 0.0331-0.1029（mg/100ml）, 0.2674~25.18（μg/g）, respectively. Antioxidant activities were found that the scavenging DPPH free radical ability was 65-91% and ferrous ion chelating activity was 21-87%. The maximum reducing ability of powder was found in the peeled PFSP dried by oven-drying, which was extracted by methanol, and minimum reducing ability was found in the powder of the blanched PFSP dried by freeze-drying which was extracted by the water. These results revealed that anthocyanins and polyphenols may be decreased after drying, but antioxidant activities were increased in the powder than the control. It was found higher reducing ability in the powder obtained from oven-drying than freeze-drying. It was also found more functional compounds and carotenoids in the unpeeled PFSP dried by oven-drying.

Keywords : Purple-flesh sweet potato、anthocyanin、total polyphenol、DPPH、ferrous ion chelating activity、reducing ability、carotenoid

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