

Author: [ADVANCED](#) | Volume Page

Keyword: |



[TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(65K\)\]](#) [\[References\]](#)

Extraction of Antioxidants in Sweetpotato Waste Powder with Supercritical Carbon Dioxide

[Shigenori OKUNO](#)¹⁾, [Masaru YOSHINAGA](#)¹⁾, [Makoto NAKATANI](#)²⁾, [Koji ISHIGURO](#)¹⁾, [Makoto YOSHIMOTO](#)¹⁾, [Toshiro MORISHITA](#)³⁾, [Tsuyoshi UEHARA](#)³⁾ and [Mikio KAWANO](#)³⁾

1) National Agricultural Research Center for Kyushu Okinawa Region

2) National Institute of Crop Science

3) Miyazaki Prefectural Food Development Center

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The application of supercritical carbon dioxide (SC-CO₂) extraction to waste powder derived from sweetpotato roots with orange flesh in a food processing factory was examined. The contents of antioxidants, β-carotene, α-tocopherol and chlorogenic acid, remaining in the waste powder after SC-CO₂ extraction under different conditions were determined by HPLC. At a constant extraction pressure, the extraction yield of β-carotene from the waste powder was highest at 40°C, decreased at 60°C and decreased further at 80°C; in contrast, the α-tocopherol yield did not vary under different temperature conditions. At a constant extraction temperature, increasing extraction pressure increased the extraction yields of both β-carotene and α-tocopherol. Under the conditions tested, the yields of β-carotene (95.1%) and α-tocopherol (76.8%) were highest at 40°C and 35 MPa. Little chlorogenic acid was extracted from waste powder. The β-carotene remaining in the waste powder after SC-CO₂ extraction correlated well with its color value of *a**.

Keywords: [sweetpotato](#), [waste](#), [powder](#), [supercritical carbon dioxide](#), [β-carotene](#), [α-tocopherol](#), [chlorogenic acid](#)

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