

: MAJOR

KEY WORD:

C526839 : MAJOR FOOD TECHNOLOGY

KEY WORD : EXTRUSION / SWEET POTATO SNACK

RUNGSINEE SOTHORNVIT : DEVELOPMENT OF SWEET POTATO SNACK
BY EXTRUSION PROCESS. THESIS ADVISOR : ASST.PROF.

SAIWARUN CHAIWANICH SIRI, Ph.D., 85 pp.

ISBN 974-631-594-3

The objectives of this research were firstly to study the effects of types of starch (non-glutinous rice starch, glutinous rice starch and tapioca starch at 40% starch) added to the peeled sweet-potato flour, process temperature of the third section (100, 110 and 120 °C) and screw speed (90, 120, 150 and 180 rpm) on physical properties, i.e. expansion ratio, cutting force, color (L,a,b) of extrudates produced by a single-screw extruder. The results showed that tapioca starch added to the peeled sweet-potato flour gave extrudates with higher values of expansion ratio, cutting force, lightness (L) and less redness (a) and yellowness (b) than those from non-glutinous and glutinous rice starch. All starch mixes gave maximum expansion ratio at 110 °C. Increasing screw speed showed no effect on expansion ratio but showed an increase in redness (a) and a decrease in cutting force, and lightness (L). Secondly, they were to study the effects of the peeled and unpeeled sweet-potato flour, quantity of tapioca starch (10-50%), process temperature of the third section (100-120 °C) and screw speed (90-150 rpm) on physical properties and sensory properties on porosity, yellowness, crispness and acceptability. The results showed that the unpeeled sweet-potato flour gave extrudates with less values of expansion ratio and higher cutting force, color (L,a,b) than those from the peeled sweet-potato flour. Increasing process temperature and screw speed gave extrudates with higher values of expansion ratio, color (a,b) and less cutting force and lightness (L) while increasing quantity of tapioca starch gave higher expansion ratio, lightness (L) and less cutting force and color (a,b). Using sensory properties, the most acceptable extrudates from both types of sweet-potato flour were processed from 50% tapioca starch, 110 °C process temperature and 150 rpm screw speed. The extrudates from the peeled sweet-potato flour had expansion ratio of 3.77, cutting force of 8.29 N. and color (L,a,b) of 69.02%, 7.60% and 35.16%, respectively and those from the unpeeled sweet-potato flour had expansion ratio of 3.16, cutting force of 12.02 N. and color (L,a,b) of 65.44%, 8.83% and 35.34%, respectively. The overall acceptability of extrudates from both types of flour showed no significant difference ($p>0.05$).

ภาควิชา เทคโนโลยีทางอาหาร

ลายมือชื่อนิสิต *รุ่งสине สอฮอร์นวิท*

สาขาวิชา เทคโนโลยีทางอาหาร

ลายมือชื่ออาจารย์ที่ปรึกษา *สุภาวดี ชัยวานิชศิริ*

ปีการศึกษา 2538

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม