COMPOSITE FLOUR BLENDS: EFFECT OF PARTICLE SIZE OF PEELED AND UNPEELED ORANGE FLESHED SWEET POTATO FLOURS ON QUALITY CHARACTERISTICS OF COOKIES

Solomon Kofi Chikpah1, Olaide Ruth Aderibigbe2, Barbara Sturm1, Albert Esper3, Oliver Hensel1, Joseph Kudadam Korese4

1University of Kassel, Agricultural and Biosystems Engineering, Germany
2National Horticultural Research Institute, Product Development, Nigeria
3Innotech, Innotech Stuttgart, Germany
4University for Development Studies, Agricultural Mechanization and Irrigation Technology

INTRODUCTION

- Wheat flour for bakery foods production is expensive in Sub-Saharan Africa.
- Replacement of wheat flour with quality and less expensive non-wheat flour is necessary.
- This study investigated the effect of particle size of peeled and unpeeled orange fleshed sweet potato (OFSP) composite flours on quality characteristics of cookies.

MATERIALS & METHODS

- Sorted, washed, peeled/unpeeled and sliced (2mm thick)
- Soaked in sodium metabisulfite (5g/L) for 15 min
- Dried at 60°C for 8 hours, milled and sieved with 250μm or 500μm mesh size
- Peeled or unpeeled OFSP Flours_250μm and 500μm
- Composite flour preparation
- Composite flours preparation
- Cookies production and evaluation

RESULTS AND DISCUSSION

- Baking loss and colour of cookies were not significantly (p>0.05) affected by flour particle size.
- Flour particle size significantly (p<0.05) influenced cookies overall acceptability.
- 250μm particle size flours with inclusion levels of 10-50% for peeled and 10-20% for unpeeled OFSP composite flours cookies had higher consumer acceptability.
- Beta-carotene and vitamin A contents were not affected by flour particle size.
- OFSP composite flour cookies had significantly higher nutritional value than the wheat flour cookies.

ACKNOWLEDGEMENT

The authors acknowledge the UPGRADE Plus (Project number: BLE – 2816PROC01) for the financial support for this work. UPGRADE Plus project is supported by funds of the Federal Ministry of Food and Agriculture (BME) via the Federal Office for Agriculture and Food (BLE).

CONCLUSION

- OFSP flour reduced baking loss and improved colour of cookies.
- 250μm particle size flour cookies had better overall acceptability.
- Vitamin A content of the cookies increased significantly with increasing level of OFSP flour.
- OFSP flour can be used to partially substitute wheat flour for cookies production.
- Generally, cookies colour darken when OFSP flour inclusion level was above 50%.
- Peeled OFSP flour with 250μm particle size and 30-50% can be used to replace wheat flour for cookies production.