

Cassava –

Rheological Properties of Baked Goods and Consumer Acceptance

Master Thesis – International Food Business

1. examiner: Prof. Dr.-Ing. Uwe Grupa
2. examiner: Prof. Dr. Oliver Hensel

Presented by: Tamara Pfaff

Fulda, August 2013

Abstract

Cassava (*Manihot esculenta Crantz*) is one of the four main sources of energy worldwide besides rice, maize and sugar cane. Especially the populations in poorer developing countries use the tuber to cover most of their daily energy intake. Food products derived from the plant are manifold as each country of cultivation developed their own variants and specialties. (Heiss 2004, Fischer 2012)

As cassava is mainly grown and processed in Africa, Asia and South America but is less known in Europe or more precisely in Germany, the plant was chosen as topic of interest for this master thesis. Part of the background is the growing awareness of the celiac disease in Germany. The main wheat flour substitutes used round here are rice and maize. Therefore cassava could serve as a good alternative to expand the raw material base for gluten-free products.

In addition to a literature part, product development was conducted to generate a baked good made from tapioca flour. Texture analysis was carried out to support the progression of the new product followed by a sensory evaluation to analyse the consumer acceptance.

In the end a final formulation was gained using composite flour consisting of tapioca, soy flour and corn starch. Texture analysis showed that it was possible to generate a gluten-free cookie with similar rheological properties with regard on the end product, but dough characteristics still differed.

Sensory evaluation at the Fulda University of Applied Sciences showed that the new developed cassava cookie was accepted by 87 % of the 101 panellists including panelists with and without gluten intolerance. When looking at the persons affected by celiac disease the cookie was accepted by 100 %, but as only 9 panellists were intolerant to gluten this result can only be seen as a tendency.