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Conduits of excellence – An attempt to consistently address quality issues of food products from Nigeria

Heiner Lehr¹ and Raymond Tavares²

¹Syntesa Partners and Associates, Spain

²United Nations Industrial Development Organisation, Austria

The dried beans, melon seeds and other agricultural sectors in Nigeria have important food safety and quality issues, often related to pesticide residues and mycotoxins. Chemical treatments are applied without any coordination, leading to pesticide residues sometimes, multiple times established MRLs. Improper storage conditions due to lack of training and infrastructure further lead to other issues like mycotoxin contamination. As a consequence, dried beans are temporarily banned from export to the European Union. In a UNIDO implemented project financed by the European Union, a National Quality Infrastructure (NQI) is being implemented which entails policy development training, equipment, standard development and technical assistance. The project has developed an implementation methodology “Conduits of Excellence” which puts the NQI into practice by creating strictly quality and food safety managed “corridors” in a collaboration between the private and the public sector and UNIDO as facilitator. Components of the Conduits of Excellence will be organised around an infrastructure element; this was identified to be the storage facilities. Hand-selected farmers, storage operators and processors work together under a comprehensive management system, supported by extension officers, laboratories and standards. Conduits of Excellence create value for the chain partners through better access to high-value markets; similar to the “Approved Trader” concept, preferential export conditions are also being considered. Trading partners are encouraged to buy from Conduits of Excellence, creating a pull effect in addition. In this contribution, we report on the first results from the implementation in 2016 of the Conduits of Excellence for Nigerian dried beans.

heiner@syntesa.eu

Functional and nutritional properties of extruded whole grain teff ready-to-eat porridges

Helen T Zewdie and M Naushad Emmambux

University of Pretoria, South Africa

The combination of underweight in children and overweight in adults, frequently coexisting in the same family, is a relatively new phenomenon in developing countries. Extrusion cooking may help to improve the nutritional quality and rheological properties of extrudates depending on the extrusion cooking conditions. Producing high and low glycemic index ready-to-eat products would be useful to tackle protein energy malnutrition and diabetes respectively. The gluten free Ethiopian indigenous grain, teff (*Eragrostis tef*), apparently has higher level of micro- and macronutrients than that of barley, wheat and sorghum and has the potential to be used in these ready-to-eat products. Extrusion cooking experiments were conducted using a twin screw extruder by varying feed moisture conditions (either 25% or 40%) and last two zones in-barrel temperatures (either 90 or 140°C). Functional properties, pasting viscosity, *in-vitro* protein and starch digestibility, soluble and insoluble dietary fibres were studied. High feed moisture extrusion cooking significantly reduced the bulk density, water absorption capacity, pasting viscosity and insoluble dietary fibre. Whereas, low feed moisture extrusion cooking significantly increased the water solubility index, soluble dietary fibre, *in-vitro* protein and starch digestibility. The feed moisture had greater effect to produce high and low GI ready-to-eat porridges. High feed moisture during extrusion cooking probably acts as plasticizer and reduces the shear force in the barrel. This may result in the reduction of degree starch depolymerisation. The increase in viscosity could be from the increase in soluble dietary fibre and the lower extent of starch depolymerisation during high moisture extrusion cooking.

helentsegaye36@yahoo.com