

Comparison of Different Starch Properties of Five Different Yam Varieties and Their Binding and Textural Characteristics in Chicken Sausage

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Starch is a major ingredient used in food the industry as binder, colloidal stabilizer, coating material, thickening agent, gelling agent, etc. Starch can be extracted from cereals, legumes, kernels, root and tubers. Yam is under the root and tuber that contain high content of starch but limitedly use for starch extraction, however, commonly consume after boiling or cooking as an energy supplier. The present study aimed to evaluate the properties of starch extracted from five different yam varieties, namely Nattala, Maha Hingurala, Agili ala, Jamburala (*Dioscorea alata*) and Raul Kukulala (*Dioscorea esculanta*). These varieties were collected from the same place, Rambukkana. Further, this study analyzed their binding properties and potential to improve the texture of chicken sausage as a replacement for cassava (*Manihot esculenta*) starch. Cassava exhibited the highest starch yield (33.21% (w/v)), while Jamburala yielded the lowest (7.62% (w/v)). Starch extracted from selected yams showed various results for swelling power range from 14.30 ± 0.20 to 7.03 ± 0.23 , solubility index ranges from 1.87 ± 0.01 to 0.98 ± 0.01 , and viscosity ranges from 14.62 ± 0.02 to 8.56 ± 0.01 mPas. Sausages made with yam starches were analyzed for hardness, chewiness, cohesiveness, and gumminess. Jamburala starch sausages closely resembled cassava starch sausages in these properties. Further, Agili ala starch incorporated sausage showed a soft texture and the cohesiveness is not significantly difference ($p > 0.05$) to the Jamburala starch, while other starches showed significant differences ($p < 0.05$). These findings have been confirmed by the sensory evaluation as all types of yam starches can be used as a binder of manufacturing of chicken sausage. Overall, results revealed that starch extracted from Jamburala yam can be used for manufacturing chicken sausage with the similar properties of cassava starch.

Keywords: Binding property, Chicken sausage, Starch, Texture parameters, Yams