Development of Curry Leaf Extraction Incorporated Low Fat Herbal Sausage with Jackfruit (*Artocarpus heterophyllus*) Seeds Flour Binder

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Introduction

Jackfruit (*Artocarpus heterophyllus Lam.*) belongs to the family Moraceae, bears the largest fruit among the edible fruits. Jackfruit tree is native to Sri Lanka and popular in several tropical and sub-tropical countries. Jackfruit has been reported to contain high levels of protein, starch, calcium and thiamine (Burkill, 1997). Roasted, dried seeds are ground to make flour which is blended with corn starch flour for food binder.

Curry leaves has proven benefits for problems related to stomach disorders and indigestion. Curry leaves has been known to prevent premature graying of the hair. The leaves also aid in the absorption of iron with their abundance of folic acid. Curry leaves improve circulation and is anti-inflammatory and delay premature graying and is anti-microbial, anti-diabetic and hypo-cholestrolemic. In addition, these leaves are applied on bruises and skin eruptions and are used as a hair tonic. Incorporating curry leaves into your daily diet can help you lose weight. These leaves flush out fat and toxins, reducing fat deposits that are stored in the body, as well as reducing bad cholesterol levels. The leaves contain 6.5% protein, 4.8% fat, 17.9% sugar and 6.2% crude fiber and which also form a good source of vitamin A, calcium and oxalic acid (Farhath-Khanum *et al.*, 2000).

Sri Lankan sausage industry at present, uses corn starch as food binder although it is costly and imported. Therefore, it is economically viable to use locally available jack seeds flour as a binder. Hence, present study was carried out to investigate the possibility of developing a low fat herbal sausage with curry leaves extraction and jack seeds flour as a binder.

Methodology

Cold water extraction of curry leaves was prepared using chopping of curry leaves with potable water at room temperature. There were three treatments (sausages) prepared by varying concentrations of curry leaves extractions as 14%, 10% and 6% to determine the most suitable curry leave extraction percentage to be incorporated in sausage. There were five treatments (based on sensory evaluation I) prepared by varying ratio between jackfruit seed flour and corn starch as 100:0,87.5:12.5,75:25,62.5:37.5 and 0:100 to select best combination as binder. Organoleptic properties of selected samples for day 1 were evaluated using 30 untrained panelist with 5-point hedonic scale from 1-extremely dislike to 5- extremely like. Selected sausages samples based on sensory evaluation were stored at 4 °C for shelf life analysis. Water holding capacity (WHC), pH, and TBA value were determined for five weeks of storage. Crude Fat, Crude Protein, Crude fiber, Dry matter, moisture and Ash were analyzed for the selected samples and the control sample. Data were analyzed using one way ANOVA and Friedman non parametric test.

Results and Discussion

Sausages incorporated with 14% of curry leaves extraction level showed significantly higher preference ($P<0.05$) with all sensory attributes except appearance, taste, texture and colour. Sausages incorporated 100% jackfruit seed flour showed significantly higher preference ($P<0.05$) with all sensory attributes.

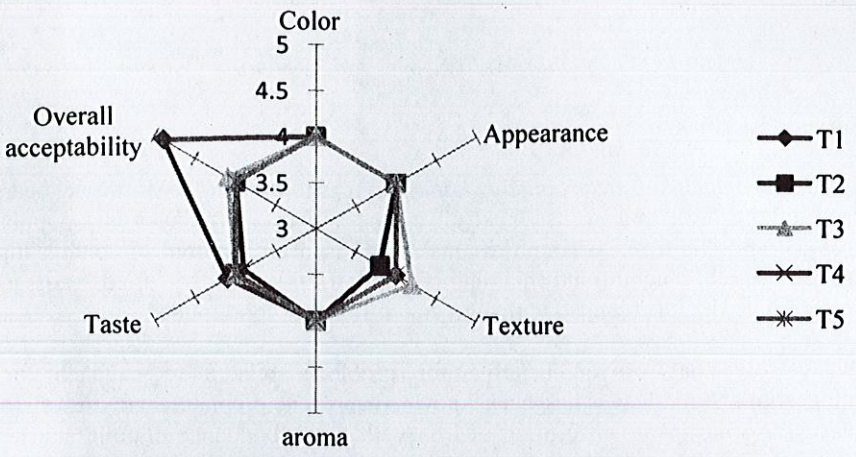

Figure 1: Web diagram for sensory evaluation II

During the storage duration pH and Water holding capacity was significantly reduced ($P<0.05$) in the selected sausage sample and the control sample (normal sausage).

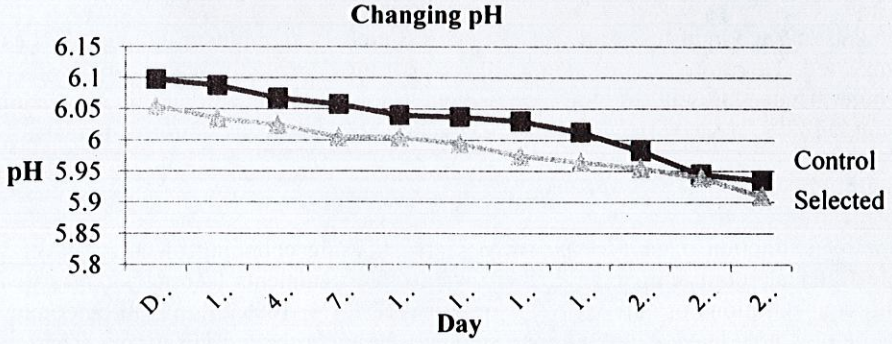

Figure 2: Changes in pH with storage duration

TBA of the selected sample was the highest ($P<0.05$) during first nine days of chilled storage at 4°C. However, according to the TBA value may increase for the initial storage and start to slow down after a few days and this reduction may due to the malonaldehyde decomposition and polymerization.

Conclusion

Sausages incorporated with 14% of curry leaves extraction level and 100% jackfruit seed flour is the best incorporation levels to the low cost herbal sausage. Incorporation of 100% of jack seed flour in to sausage can save 8.642% of cost of production. Sausages incorporated with 14% of curry leaves extraction level shows 7% of fat reduction than control sample. Proximate composition of the Sausages incorporated with 14% of curry leaves extraction level and 100% jack seed flour level was 56.52%DM, 25.7% Crude protein, 9.7% moisture, 7% Crude fat, 0.98% Crude fiber and 0.10% ash.

References

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