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Quality evaluation of biscuits prepared from the composite flour of sprouted sorghum, soybean and finger millet

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This study was aimed at producing quality biscuit using composite flour blends from cheap and underutilized crops like sorghum, soybean and finger millet. Biscuits prepared from different treatments of composite flour vz: T1-100% wheat, T2-80% Sprouted Sorghum + 10% Soybean + 10% Finger millet, T3-70% Sprouted Sorghum + 20% Soybean + 10% Finger millet, T4-60% Sprouted Sorghum + 30% Soybean + 10% Finger millet,T5 - 50% Sprouted Sorghum + 40% Soybean + 10% Finger millet, T6-40% Sprouted Sorghum + 50% Soybean + 10% Finger millet were subjected to analysis of nutritional, organoleptic and microbial qualities with physical properties to evaluate the suitability of this biscuits for consumption after formulation. The nutritional analysis of the freshly prepared biscuits revealed that protein, ash, fiber, and fat were increased from 10.53-14.35, 1.41-2.16, 1.27-3.93 and 17.90-24.77 respectively while moisture content was decreased from 3.78-3.27 when increasing the soybean flour 10%-50% in the biscuits mixtures. The physical properties of biscuits revealed that there were significant differences between the treatments of biscuits (at 5% level of significance) when the level of soybean increased. According to Turkey`s test, the mean scores for all assessed organoleptic characters varied significantly ($p<0.05$) in freshly made biscuits. No harmful micro-organisms were observed in the freshly made biscuits. Based on the nutritional and organoleptic quality characteristics of freshly made biscuits, most preferred treatments of nutritionally enriched biscuit samples such as T3-70% Sprouted Sorghum + 20% Soybean + 10% Finger millet, T4-60% Sprouted Sorghum + 30% Soybean + 10% Finger millet, T5-50% Sprouted Sorghum + 40% Soybean + 10% Finger millet with control treatment were selected and subjected to storage studies in ambient conditions at 300C and 70-75% RH for three months to evaluate shelf life of the biscuits. From the overall acceptability rating, the biscuit sample prepared from composite flour with 60% sprouted sorghum flour, 30% soybean flour and 10% finger millet flour had the highest mean value compared with other treatments. Based on the nutritional, organoleptic and microbial qualities, the biscuit sample prepared from composite flour with 60% Sprouted Sorghum flour, 30% Soybean flour and 10% Finger millet was the best treatment compared to other combinations at the end of storage period.

Biography

Kanagarajah Premakumar graduated from the University of Peradeniya, Sri Lanka and completed his Masters and Doctoral Degrees at Asian Institute of Technology, Bangkok, Thailand and Indian Agricultural Research Institute, New Delhi, India respectively. He joined at the Faculty of Agriculture, Eastern University, Sri Lanka as Teaching Assistant in 1984 and currently working as Head/Dept. of Agricultural Chemistry cum Senior Lecturer Gr-I in Food Science & Technology at the Faculty of Agriculture, Eastern University, Sri Lanka. During his career, he held various administrative positions Vz: Director/Swami Vipulananda Institute of Aesthetic Studies, Eastern University, Sri Lanka, Acting Vice-Chancellor of Eastern University, Sri Lanka, Dean of Faculty/Agriculture, Director/IRQUE Project, Head of Department, Senior Student Counsellor and Academic Sub Warden. He has nearly 34 years of teaching experience and taught Food Science & Technology, Postharvest Technology, Biochemistry and Food & Nutrition related courses to Undergraduates and Postgraduates at the Faculty of Agriculture, Eastern University, Sri Lanka. He also received an award for "Long-Term Meritorious Service" presented by the Eastern University, Sri Lanka in recognition of his meritorious service rendered to the university over a period of 30 years (1983-2013) and awards for "Outstanding Contribution to Education" & "Education Leadership" presented by the World Education Congress, CMO Asia and CMO Council, Mumbai, India in Singapore.

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