

Variation in Colour Attributes of Arrowroot (*Maranta arundinacea*) Flour from Five Different Provinces in Sri Lanka

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In Sri Lanka, Arrowroot (*Maranta arundinacea*) is an underutilized tuber crop with tremendous potential for producing gluten-free, nutritious flour that could be used as a wheat flour substitute. This study aimed to evaluate the colour attributes of Arrowroot flour from five different Provinces in Sri Lanka to determine whether the growing area had an impact on the colour of the flour. From Western, North-Western, Southern, Uva, and Sabaragamuwa Provinces three locations were selected for sampling since they have favourable climatic conditions for growing Arrowroot. The colour parameters L* (lightness), a* (redness), and b* (yellowness) were measured using a Colourimeter (PCE-CSM 2, United States). The lightness of the flour samples was found to be significantly different from one another. The a* values for flour samples collected from five Provinces did not differ significantly. The mean a* values ranged from 1.07 to 1.40. The b* results for Arrowroot flour samples from five different Provinces had a range of 6.85 – 8.69. The Province with the highest b* was Sabaragamuwa, while the Province with the lowest was Southern (6.85). The overall L*a*b* colour coordinates of Arrowroot flour samples from five Provinces coordinated around the white colour with minor positive values for red and yellow colours. L* and a* (-0.75; $p < 0.05$) and L* and b* (-0.788; $p < 0.05$) had negative moderate correlations, indicating that when the a* and b* values increase, the flour sample's lightness decreases. Arrowroot flour has a higher level of colour similarity, indicating that the growing area has a lesser influence on the colour of flours. The similar colour attributes of flours from different growing areas in Sri Lanka enable the use of composite flours from different places without significant colour variations. It is beneficial in the large scale Arrowroot flour production for the food industry.

Keywords: Arrowroot, Flour colour, L*a*b* values, lightness, *Maranta arundinacea*