

Study on Colour Change of Cooked Red Pericarp Rice Varieties Blended with Iron and Folic Acid Fortified Kernels

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Micronutrient malnutrition is a global issue and iron deficiency is a major public health problem particularly in young children and pregnant women. Rice fortification with micronutrients has been recognized as a key approach to alleviate micronutrient deficiency in rice eating populations. Sri Lankans consume both parboiled (55 %) and raw rice (45 %) in red (23 %) and polished (77 %) forms. Therefore, this study was conducted to investigate the issues of iron and folic acid fortified kernel blending with locally available red pericarp rice. The objective was to investigate the influence of the variety and degree of polishing on the intensity of blue colour development in cooked rice due to ferric reduction reaction during cooking. The nine red rice varieties Bw 361, Attakari, Bg 252, Ld 365, Ld 356, Bg 406, At 303, At 362 and Bw 364 were polished to 2 and 8 %. Rice blending was done at 1:99 ratio (kernel: red rice) with kernels having 8 mg/100 g of ferric pyrophosphate and folic acid (13.5 mg/100g). Fifty grams of blended and normal rice (control) in polished and parboiled forms were cooked under same conditions and blue color development was visually observed. There was no colour change in controls and parboiled red rice at both polishing levels after cooking. However, Attakari and Bg 252 raw rice developed high and slight greenish blue color, respectively under both polishing levels. However, there was no any blue color development observed after polishing the same varieties. All other blended red rice varieties developed undetectable blue color development after cooking. Therefore, it is assumed that the antioxidants (phenolic compounds) in the bran reduce Fe^{3+} to Fe^{2+} during cooking and the variety influences the intensity of colour change.

Keywords: Antioxidants, Blue Colour Development, Iron Fortification, Red Rice Blending.