

Reduction of Enzymatic Discolouration of Natural Rubber Latex by Using Antioxidant and *Moringa oleifera* Leaf Extract

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Natural rubber latex tends to discolour due to enzymatic activity. This should be avoided to maintain the quality of natural rubber latex. Natural rubber latex of RRISL 203 clone shows higher degree of enzymatic discolouration due to the presence of phenolic substances. The objective of this study was to find a solution to reduce the enzymatic discolouration of latex of the above clone using natural and commercial antioxidants. Leaf extract of *Moringa oleifera* has been evaluated for its antioxidant activity as it contains higher amount of powerful antioxidant quercetin. Three treatments: *M. oleifera* leaf extract, Vitamin C (a solution made by dissolving vitamin C tablets) and 'antioxidant G' (is a natural antioxidant) were used to perform antioxidant activity in latex obtained from RRISL 203 clone. Three replicates were done for latex samples obtained from three tapping blocks. Each solution of antioxidant was added separately prior to add formic acid to latex. Samples were prepared as unfractionated-unbleached crepe rubber with a control. Samples were analyzed for Mooney viscosity, Plasticity Retention Index, Volatile Matter Content and Ash Content. Further, colour index test was done for the colour comparison which determine the enzymatic discolouration. There was no significant difference ($P>0.05$) in raw rubber properties among the treatments whereas significant difference ($P<0.05$) among treatments for the colour index was observed. Lowest colour index values (1, 1.5 and 2.0) were resulted by the 'antioxidant G' in three blocks as compared to the other treatments. Crepe samples prepared by treating Vitamin C and leaf extract of *M. oleifera* were inferior in colour as compared to the 'antioxidant G' treated samples. It can be concluded that 'antioxidant G' can be used effectively to reduce the discolouration of natural rubber latex while maintaining its properties satisfactorily.

Keywords: Antioxidant, Crepe rubber, Discolouration, Leaf extract, *Moringa oleifera*