

**REDUCTION OF ENZYMATIC DISCOLOURATION IN
NATURAL RUBBER LATEX BY USING ANTIOXIDANTS
AND *Moringa oleifera* LEAF EXTRACT**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University

In partial fulfilment of the requirements for the award of
Bachelor of Science in Palm & Latex Technology and Value addition

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Palm & Latex Technology and Value Addition Degree Programme

Faculty of Animal Science and Export Agriculture

Uva Wellassa University of Sri Lanka

2018

ABSTRACT

Latex crepe rubber is the purest form of natural rubber (NR) which should be maintain at its higher quality. Hence the avoidance of discolouration is vital in term of quality. Enzymatic discolouration (ED) can be prevented by inhibiting the enzymatic reaction with addition of antioxidants. NR latex of RRISL 203 clone shows higher degree (0.038 w/w %) of ED due to the presence of phenolic substances. The objective of this study is to find a solution to reduce the ED occur in the latex of the above clone using natural and commercial antioxidants. Leaf extract of *Moringa oleifera* has been evaluated for its antioxidant activity due to the higher amount of quercertin which is the most powerful antioxidant in its leaves. Three treatments: *M. oleifera* leaf extract, Vitamin C (a solution made by dissolving vitamin C tablets) and 'antioxidant G' (AG) (is a natural antioxidant) were used to perform antioxidant activity in latex obtained from RRISL 203 clone for this study. 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. Mooney viscosity, Plasticity Retention Index, Volatile Matter Content and Ash Content were tested for treatments. In addition to that, the Lovibond colour index was tested for the colour comparison which determine the ED. The *P* value (>0.05) proved that there was no significant difference in raw rubber properties among the treatments; whereas significant difference ($P<0.05$) among treatments for the colour index was observed. In three blocks the colour index results 1, 1.5 and 2.0, which were the lowest values obtained for the 'antioxidant G with respect to the other treatments. The results revealed that 'antioxidant G' effectively reduces the discolouration maintaining its raw rubber properties satisfactorily. Crepe samples prepared treating Vitamin C and leaf extract of *M. oleifera* were inferior to the 'antioxidant G' in reducing discolouration of crepe rubber.

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