

**PERFORMANCE ANALYSIS OF ORTHODOX ROLLER IN BLACK
TEA PRODUCTION FOR WEWASSA TEA FACTORY AT BADULLA**

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

In partial fulfillment of the requirements for the award of
Bachelor of Science in Tea Technology and Value Addition

by
JINTHUSHAYI SRISKANTHARASA

**Department of Export Agriculture
Faculty of Animal Science and Export Agriculture
Uva Wellassa University of Sri Lanka**

2017

ABSTRACT

Orthodox manufacturing in black tea production is dominant in Sri Lanka. The amount of leaf charged into a roller must be as high as possible, but for successful rolling one of the essential conditions for which is brisk circulation of the leaf under pressure, charges must not be excessively high. There is no developed standard for rolling pressure and feeding rate for orthodox roller in black tea manufacturing for Wewassa Tea Factory, Passara, Badulla. Therefore the objective of this study was to optimize the performance of orthodox roller in black tea manufacturing by varying the rolling pressure and feeding rate. Three levels of rolling pressure (P1 - 10 min-no pressure +10 min-touch bar, P2 - 10 min-no pressure +5 min-1/4 pressure +5 min-no pressure and P3 - 10 min-no pressure +3 min-1/4 pressure +2 min-1/2 pressure) and three levels of feeding rate to the roller (200 kg, 205 kg and 210 kg) were used as treatment combinations. Currently, the Wewassa Tea factory is using P1 pressure and F1 feeding rate (F1P1) for tea manufacturing. Particle size analysis, brightness, TF/TR and organoleptic properties were measured for the triplicate samples and compared with the sample prepared with the factory standard (F1P1). The results revealed that there is a significant effect of rolling pressure and feeding rate on particle size analysis, but there is no significant effect on color, ratio between Theaflavins (TF), Thearubigins (TR) and sensory analysis. The treatment combination of feeding rate 210 kg and rolling pressure P2 has given high amount of particle size belongs to No 3 mesh size while conserving other chemical and organoleptic parameters. Thus it can be concluded that F3P2 treatment combination is the best.

Keywords: Black tea manufacturing, Feeding rate, Orthodox roller, Particle size, Rolling pressure.