



P04 Industrial adaptation and validation of appropriate technologies to improve Cinnamon (*Cinnamomum zeylanicum*) quill processing

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True cinnamon or Sri Lankan cinnamon is scientifically known as (*Cinnamomum zeylanicum*). Scarcity of skilled labor and higher cost of cinnamon quill processing sector are the main problems encountered on productivity improvement. Hence, technology inventions and innovations in cinnamon processing are very important. Main objectives, of this study were commissioning and validation of the prototype of newly modified RUWEEKA - PG rubbing machine, with the industry collaboration, and adaptability experimentation of cinnamon sticks freezing technology for bark detachment without compromising to quality parameters of the bark. Cinnamon sticks with different diameter classes were processed using rubbing machine which have been produced with poly cam mechanism to facilitate the stick insertion. Traditional processing system was also compared with machine rubbing. Freezing experiment was conducted by selecting sticks at mature, over mature and flushing stages. All types of sticks were frozen with and without scraping and manual rubbing were conducted as control. Modified RUWEEKAPG machine has displayed 54.1% of rubbing time efficiency than manual rubbing during peelable season and 56.02% of efficiency during unpeelable season. Mean inserting time of sticks on rubbing machine with poly cam was 2 seconds for all diameter classes. Efficiency of the rubbing process during the unpeelable time could be accelerated by 2.27 times, when modified RUWEEKA-PG machine is used for rubbing process. Freezing of cinnamon sticks without scraping had a time saving of 255.78 seconds which is 53.6 % of efficiency increment for total bark removing process. It was also established that there is no significant difference in moisture (P= 0.48) and oil content (P=0.14) in frozen cinnamon bark compared to the non-frozen. However the economy of the process in terms of energy consumption has to be checked to provide firm conclusion on freezing process.

Keywords: Ceylon cinnamon-(*Cinnamomum zeylanicum*), RUWEEKA-PG , rubbing machine, stem freezing, peelable season, unpeelable season.