

**EFFECT OF DRYER CONDITIONS ON QUALITY  
OF CINNAMON (*Cinnamomum zeylanicum* Blume)  
QUILLS BEFORE PACKAGING**

A dissertation submitted to the  
Faculty of Animal Science and Export Agriculture  
Uva Wellassa University of Sri Lanka  
In partial fulfillment of the requirements for the award of  
Bachelor of Science in Export Agriculture

By  
**MALGAHA GAMAGE DILSHANI ABEYSINGHE**

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

**2018**

## ABSTRACT

Cinnamon is one of the major spices important in export economy. Improper drying of the cinnamon quills may cause to microbial and insect infestations on packed cinnamon quills and it causes quality deterioration of final product. This study was conducted to identify most suitable dryer condition to maintain the export quality of the cinnamon quills before packaging. The prepared cinnamon quills were dried at different temperatures (35, 40, 45 and 50 °C) for different time periods (2, 3, 4, 5 and 6 hours) in dryer. The experiment was conducted as triplicate using 21 treatments with control (shade dried under room temperature, 24 hours). Moisture percentage (Dean & Stark method, 2014), oil yield (Clevenger arm method, 2014), water activity, microbial count (CFU), pest count per 100 g, cinnamaldehyde content (GCMS) and color (Munsell colour chart) of the cinnamon quills were measured before and after drying. Mean values of moisture contents under different treatments were less than 15% (Standard value). Mean values of oil contents under (35 , 40 and 45 °C ) and (2, 3, and 4 hours) were greater than 1% but values ( $P > 0.05$ ). Water activity of all treatments were less than 0.75 and 35 °C, 2 hours treatment was significantly differed from all other treatments except 35 °C, 3 hours ( $P < 0.05$ ). Treatments under 35 °C, 3 hours and 35 °C, 2 hours conditions were resulted microbial growth but other treatments were not ( $P < 0.05$ ). Zero pest count was in sample dried at 35 °C for 6 hours and temperatures higher than 35 °C ( $P < 0.05$ ). Mean values of cinnamaldehyde content were greater than 50% in all treatments. Colour did not vary changed significantly among different treatments. Temperature in between 40 – 45 °C for 2, 3, 4 hours were not adversely affected to the quality of cinnamon quills based on oil content, insect count and microbial count. Considering high oil content, least microbial and pest count it can concluded that 40 °C, 3 hours is the optimum dryer condition to keep the export quality.

Keywords: Quality, Dryer Condition, Microbial Count, Oil Content, Colour