

Improvement of Bread Crumb Structure Using Cinnamon Leaves (*Cinnamomum verum*) Extract Along With Functional Properties

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Bread is a popular food product across the whole cross profile of the society. This study was carried out to produce bread with a soft crumb structure along with well leaven bread mass for the competitive and dynamic market. Every ingredient used in bread making has a function causes improve bread quality. Physical properties of certain types of polysaccharides cinnamon leaves can be applied as gums and mucilage. To select the best growth stage of cinnamon leaves in extraction of mucilaginous material, strength of the gum obtained from each maturity stage of leaves was measured as viscosity. In viscosity evaluation fully matured leaves result the best gum forming ability as 9 centipoises. In prevention of enzymatic browning reaction of cinnamon leaves, gum extracted were subjected to tree treatments as steam blanching process in 5 minutes, treat with vitamin C and both together. A pantone color chart was used to identify the least color occurrence. The lightest Pantone colors number 471 were observed in the treatment subjected to both heat treatment and vitamin C application. When select best drying method to preserve gum forming ability of cinnamon leaves cooling with dehumidifying resulted highest viscosity as 9 centipoises. To determine the influence of cinnamon extract leavening process and leavening time with four variables such as, Magnitude of leavening agent, sugar content, plant extract, leavening time, at two levels (low and high) two factor factorial design was used. The best treatments were selected in terms of less leavening time to reach leavening index 2. Incorporation of best treatments to commercial scale bread manufacturing, the prepared bread result 40 % of moisture content, 0.13 and 0.14 of bulk density and 5.23, 5.31 in pH values. In sensory evaluation appearance of the bread and fragrance of the bread highly accepted in cinnamon incorporated bread comparatively to ordinary bread.

Key words: Pantone color chart, Steam blanching, Sooting with dehumidifying, Leavening time, Leavening index