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Development of instant cooking jack seeds for the fast food industry by the double soaking and double Freezing method

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The Jack fruit (*Artocarpus heterophyllus* Lam) is a popular fruit crop that is widely grown in Sri Lanka. The ripe fruit contains well flavored yellow sweet bulbs along with seeds. Though jack seeds are delicious and nutritious, it is still under exploited with a vast potential for use as a convenient food product. In order to accomplish this task, instant jack seeds were developed particularly for the sake of the fast food industry by resorting to two factor factorial designs with three variables such as aging, soaking, and with and without a leavening agent. Therein, 2.0 kg of fully mature jack seeds from the same plant were taken and divided into two portions and one portion was kept for aging for 10 days and the other portion was put into an oven at 230 ^{0}C for15 minutes. After heat treatment, the seed coat of the seeds was carefully removed without damaging the cotyledons. Thereafter, these seeds were divided into two portions and each portion was soaked in cold water (30 - 32 ^{0}C) with and without $NaHCO_3$ (0.5%) for 6 hrs. Thereafter, these two portions were taken out and put into a freezer (-8 ^{0}C) for 8 hrs in order to form ice crystals in the seeds. The frozen seeds were taken out and allowed to thaw for 25 - 30 min. Finally, these two portions were divided into two and one portion of each was subjected to the same soaking, freezing and thawing processes for 6 hrs with and without $NaHCO_3$ as previously done. The thawed seeds were dried in a hot air dryer at 70^{0}C for 4.5 -5 hrs in order to obtain a moisture content of 6 - 8%. The same procedure was adopted to the jack seeds subjected to the aging process. Jack seeds prepared from eight treatment combinations were subjected to the cooking test as well as the sensory evaluation for four sensory stimuli namely taste appearance, hardness and overall acceptability. All treatments were replicated thrice and the gathered data were analyzed using parametric as well as non parametric (Kruskal Wallies) ANOVA.

The results revealed that the best treatment was where aged jack seeds were subjected to the double soaking and double freezing process with $NaHCO_3$ at 0.5%. These seeds had been cooked completely in 3.0 min, and except for the sensory stimulus appearance, their organoleptic properties, namely, “taste, hardness and overall acceptability” were better than those obtained by the other seven treatment combinations. Thus, jack seeds prepared by the double soaking and double freezing method can be used as a viable option for the fast food industry because these seeds have a milky sweet taste and soft texture.

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