

Thesis Title Optimal Precooling Conditions of Broccoli Under Vacuum and Hydro-Vacuum Cooling System
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Abstract

This work aimed at study and investigating the optimum condition for vacuum cooling process of broccoli in related to shelf-life prolonging of precooled broccoli. The study investigated the optimum conditions using the vacuum cooling system compared with hydro-vacuum cooling with difference packaging and quality of broccoli after being precooled. The study results illustrated that the optimum condition for vacuum cooling process of broccoli is packaging in package (polyethylene plastic bag) and broccoli with initial temperature of 15-20 °C precooled with the best parameters obtained for the last bleed pressure at 5.5 mbar and soak time of 25 minute. For broccoli with the initial temperature of 21-25 °C, the optimum condition is the last bleed pressure at 5.5 mbar with the soak time of 30 minutes. In term of quality during storage, the research also exemplified that broccoli precooled under those favorable conditions are significantly better preserved by delaying yellow flower heads with longer storage life (4 ± 2 °C) and shelf life (8 ± 2 °C) of 12 and 6 days, respectively as opposed to the normal length of 3 and 8 days, respectively.