

ABSTRACT

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THE APPLICATION OF FOAM MAT DRYING IN THE PRODUCTION OF GREEN KIWI FRUIT BEVERAGE POWDER

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(xiv + 64 pages: 10 figures, 14 tables, 10 appendices)

*Foam mat drying is considered as an alternative technique to spray dring and freeze drying on producing powder. The production of powder using foam mat drying technique need several ingredients and proper conditions to obtain high quality of powder. The aim of this research was to investigate the possibility of producing kiwi fruit (*Actinidia deliciosa*) powder for instant drink. In this research, optimum kiwi powder was determined by investigating proper selection of foaming agent, foaming aid and selection of suitable drying conditions. The main research stage was divided into three steps. Step I of the main research stage was done by adding kiwi juice with different concentrations of CMC (0%, 1%, 1.5%, 2%, 2.5% w/w juice) and maltodextrin (0%, 10%, 15%, 20% w/w juice). Step II of main research stage used varying egg albumen concentrations (5%, 10%, 15% w/w juice) and different whipping times (3, 5, 7 minutes) to produce foam. Subsequently, the foam was treated with different drying temperatures (50, 60, 70 °C) and times (3, 4, 5, 6 hours). All samples were subjected to several analyses (percentage yield, stability, total dissolved solids, radical scavenging activity and total color differences), however, chosen combination of each steps were obtained based on the highest percentage yield. The selected combination in step I was concentration of 2.5% CMC and 15% maltodextrin, with an everage percentage yield of 76.3377%. The highest percentage yield in step II was 78.1926% using 15% egg albumen and 7 minutes whipping. While step III, 60 °C for 3 hours was considered as the best drying temperature and time, with an average yield of 78.1926%. Based on the chosen combinations of each steps, optimum powder was obtained and analyzed for particle size analyzer, GC-MS, HPLC and detection of microorganism in the sample.*

Keywords: Foam mat drying, kiwi powder, maltodextrin, carboxymethyl cellulose, egg albumen

References: 63 (1998–2017)