ABSTRACT

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THE EFFECT OF TEMPERATURE AND RELATIVE HUMIDITY TO THE SOLUBILITY KINETICS OF EFFERVESCENT POWDER JAVA TEA (*Orthosiphon aristatus* Bl. Miq) BASED DRINK DURING STORAGE

(x + 125 pages: 7 tables, 26 figures, and 7 appendices)

Effervescent Java tea quality without packaging was observed for 29 days with conditioned relative humidity (32.4%, 43.2%, and 51.4%) and storage temperature (15°C, 25°C, and 35°C). One of the most important factors that can be used to determine effervescent quality was dissolution time. The dissolution time was increased along with the longer storage time and increase of temperature. There is no significant effect of relative humidity to the dissolution time. Antioxidant activity was affected by temperature. The antioxidant activity decreased from day 0 to day 29. Color was affected by relative humidity and storage temperature. Sample stored at 35°C has the lowest °Hue which showed darker color. The moisture content was decreased from day 0 to day 29 due to storage relative humidity. pH was affected by relative humidity. Foaming volume was affected by temperature. Both pH and foaming volume from day 0 to day 29 tend to be stable in changes. The shelf life of effervescent Java tea was determined through Arrhenius equation. Based on the equation of Arrhenius, the shelf life of effervescent Java tea stored with RH 51.4% without packaging was 23 days. The shelf life of effervescent Java tea stored at 25°C without packaging was 12 days. The energy activation of effervescent Java tea stored at 25°C was 12.55 kcal/mol.

Keywords: Effervescent, Java tea, (*Orthosiphon aristatus* Bl. Miq), storage, shelf life, dissolution time

References: 62 (1975-2013)