

Abstract

Fresh-like and higher antioxidant activity of okra (*Abelmoschus esculentus*) powder by microwave vacuum drying [†]

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Abstract: This research aims to improve the quality of dried okra powder using microwave vacuum drying (MVD) compared to hot air drying (HD) at 70°C with 1.5 m/s of velocity. Results showed that MVD at 3 W/g, -600 mmHg reduced the drying time by 75% compared to HD. Among several thin-layer models, the Modified Henderson & Pabis was found to be the best for explaining the drying characteristic of okra. Based on Fick's model, the effective moisture diffusivity (D_{eff}) of the okra dried by MVD was $1.1913 \times 10^{-8} \text{ m}^2\text{s}^{-1}$, higher than that by HD. Dried okra from MVD had less total density ($p < 0.05$) than HD. Moreover, the a^* and b^* values of the MVD okra powder were lower than those of HD, similar to fresh okra. The MVD okra powder had higher total polyphenol content and DPPH radical scavenging activity than HD and was close to fresh okra.

Keywords: Okra; *Abelmoschus esculentus*; microwave vacuum drying; hot air drying; mathematical model; antioxidant

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