**Mathematical modelling of ultrasound pretreated kumquat (*Citrus japonica var. margarita*) in freeze dryer**

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| **ABSTRACT** Kumquat (*Citrus japonica var. margarita*) is a citrus fruit that resembles a tiny orange and is rich in flavonoids [1-3]. Kumquat, which can be consumed raw and processed, was dried in a freeze dryer with ultrasonic pre-treatment and its mathematical modelling were investigated in this study. Ultrasound pretreatment was applied for 30 and 60 seconds and the drying process was proceeded at -68.6 C and 0.9 Pa for control and pretreated samples. The experimental drying data is fitted into Hendersen & Pabis, Jena & Das, Lewis, and Two-Term Exponential drying models, and the data-model compatibilities were compared. The most suitable model was determined as Jena & Das model with the highest *R2*, and the lowest *χ2*, and *RMSE*. It was observed that the *R2* values of all the models applied varied between 0.994740 and 0.998673.**References:** [1] Barreca D., Bellocco E., Caristi C., Leuzzi U. & Gattuso G. (2010). Kumquat (Fortunella japonica Swingle) juice: Flavonoid distribution andantioxidant properties, *Food Research International, 44*, 2190–2197.[2] Chaverri J., Rodríguez N.C., Ibarra M.O. & Rojas J.M.P (2008). Medicinal properties of mangosteen (Garcinia mangostana), *Food and Chemical Toxicology, 46*, 3227–3239.[3] Chaovanalikit, A., Mingmuang, A., Kitbunluewit, T., Choldumrongkool, N., Sondee, J. & Chupratum, S. (2012). Anthocyanin and total phenolics content of mangosteen and effect of processing on the quality of mangosteen products, *International Food Research Journal 19, 3*, 1047-1053. |

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