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Czech J. Foo

Aghbashlo M.,
Kianmehr M.H.,

Arabhosseini A.
Nazghelichi T.:

Modelling the ca
thin-layer drying
semi-industrial
continuous ban

Czech J. Food Sci., 29 (201

This paper presents a mathe
modelling of the drying proce
industrial continuous band d
slices with the thickness of 5
used for the drying experime
experiments were conducted
temperatures, 50, 60, and 70
air velocities, 0.5, 1.0, and 1
three chain linear velocities,
4, 2.78 × 10 – 4, and 3.33
with three replications for eac
The Lewis, Henderson & Pa
models were fitted to the exp
data of the moisture ratio aga
sample position using non-li
regression analysis by MATL
computer program. The mod
compared based on their coe

determination ($R2$), root mea
errors (RMSE), and reduced
($\chi 2$) between the experiment
predicted moisture ratios. Co
the Page model was selecte
mathematical model for desc
drying kinetics of the carrot s
correlations of the Page moc
k and m with the variables T

were determined. The effecti
diffusivity varied from 3.21 ×
8.98 × 10 – 7 m2/s. The en
activation varied from 23.02
28.1 kJ/mol using Arrhenius
equation.

Keywords:

carrot; thin-layer drying; mat
modelling; semi-industrial-co
band dryer; effective moistur

[fulltext]

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