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LIST OF SYMBOLS

А	Characteristics parameter of sorption models
a,b,c,d	Parameters used in net isosteric heat of sorption
	equation
$a_{ m w}$	Water activity, decimal
В	Characteristics parameter of sorption models
С	Characteristics parameter of sorption models
C_p	Specific heat of rice grain (J kg ⁻¹ K ⁻¹)
C _{pw}	Specific heat of water (J kg ⁻¹ K ⁻¹)
d	Diameter of cylindrical vessel (m)
Е	Electric field (V m-1)
Ez	Electric field propagating in z-direction (V m ⁻¹)
F _{cal}	Calculated value of F in stastistical analysis
f	Microwave frequency (Hz)
g	Acceleration due to gravity, $(m s^{-2})$
h_c	Heat transfer coefficient (W m ⁻¹ K ⁻¹)
Н	Magnetic field, (A m ⁻¹), Hardness (N)
j	Imaginary number
K	Thermal conductivity (Wm ⁻¹ K ⁻¹)
ko	Wave number
1	Length of cylindrical vessel (m)
1/L ratio	Length/ length ratio
М	Moisture content (% wb)
M _e	Equilibrium moisture content (%db)
MI	Mixing Index
Mr	Characteristics parameter in Isosteric heat of Sorption equaition

Ν	Rotational speed of agitator shaft; rpm, Total
	number of samples
N _{PC}	Number of grains puffed completely
N _{UP}	Number of grains remained unpuffed
Р	Microwave power level (W)
р	Overall proportion of tracer
P ₀	Actual input of microwave power (W)
Q	Amount of heat absorbed by water (J), Microwave
	heat source $(Jm^{-3} s^{-1})$
Q _{st}	Net isosteric heat of sorption (kJ mol ⁻¹)
r	Radius of the cylindrical vessel (m)
R	universal gas constant (J kmol ⁻¹ K ⁻¹)
S	Salt content in rice, %(w/w)
S_0^{2}	Variance of completely segregated mixture
S^2	Variance of spot samples chosen
Sr ²	Variance of completely randomized mixture
t	Puffing time (s)
Т	Surface temperature of grain (K), Torque (Nm)
T _a	Temperature of air inside the oven (K)
T _i	Initial temperature of water (°C)
Vp	True volume of puffed rice (ml)
V _{PC}	Volume of pre-conditioned rice before puffing (ml)
V _{PCT}	Total volume of pre-conditioned rice (ml)
Vs	Volume of sand (ml)
V _T	Total volume of the puffed rice and sand (ml)
V _{UP}	Volume of unpuffed rice (ml)
W	Weight of rice (g)
X _i	Fraction of coloured grain in a random sample

x	Average fraction of coloured grain in sample
ε ₀	Permittivity of free space, $(8.85 \times 10^{-12}, F/m)$
ε _r	Electrical permittivity of material (dimensionless)
	Dielectric loss factor (dimensionless)
ε ₀	Dielectric constant (dimensionless)
μ_r	Magnetic permeability of material (dimensionless)
ρ	True density of particle (kg m ⁻³)
σ	Electrical conductivity (S m ⁻¹)
ω	Angular frequency of the microwaves (rad s^{-1})

LIST OF ABBREVIATION

AOAC	Association of Official Analytical Chemists
CFTRI	Central Food Technological Research Institute
db	dry basis
EDS	Energy dispersive X-ray spectrum
EMC	Equilibrium moisture content
ERH	Equilibrium relative humidity
ER	Expansion ratio
GAB	Guggenhiem, Anderson and de Boer
m.c.	Moisture Content (% wb/db)
MCR	Machine conditioned rice
MI	Mixing Index
PP	Percent puffing
RH	Relative humidity (%)
RMSE	Root mean square error
RTE	Ready-to-eat
SEM	Scanning Electron Microscopy
TCR	Traditional conditioned rice
TE_{10}	Transverse electric mode of microwave waveguide
wb	Wet basis