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Modelling and optimization of ohmic heating using artificial neural network (ANN)

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■ **ABSTRACT** : In this study the tomato juice was heated in a laboratory scale ohmic heater. This tomato juice passed through applying voltage gradient in the range of 100-200V and their properties were compared with the untreated raw tomato juice. The linear temperature dependent electrical conductivity relationship was obtained. System performance co-efficient was in the range of 0.9057 to 0.9887. Temperature, time, voltage, current and electrical conductivity data were generated by conducting the experiments and these data were used to develop artificial neural network (ANN) models. Optimized ANN models were developed for rapid and more accurate prediction of electrical conductivity. The MSE for training, testing and validation were $1.114e-17$, $2.218e-5$ and $4.057e-8$. The correlation co-efficient for all data set was > 0.982 .

■ **KEY WORDS** : Ohmic heating, Tomato juice, Modelling, Optimization, Artificial neural network

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