EXPERIMENTAL INVESTIGATION OF DRYING RATES OF SOLAR

PHOTOVOLTAIC AND THERMAL

F.G. Houghton[1]*, A. K.Grain.[2], G.H.Elizerbet[3]

[1]Department of Physics, University of Hiltop, Delaware USA.
[2] Department of Engineering and Mathematics, Sheffield Hallam University, Sheffield. UK.
[3]Department of Food Science, Lahor University, Cennai. India.
*Corresponding Author

ABSTRACT

Drying process is influenced by many factors which include environmental parameters like temperature, humidity, wind speed and pressure; type of the equipment employed and properties of the materials being dried, such as moisture content and surface area. Many studies have been carried out on drying technologies, especially drying curves and modelling equations, most of which have focused on univariate analysis employing only mosture ratio and time as variables as dependent and independent variables, respectively. This paper focuses on multivariate drying analysis with the modelling equation incorporating physical parameters such as Humidity, Temperature and wind speed, using constructed solar energy thermal dryer and solar Photovoltaic assisted dryer equipment. The experimental data obtained were used to model the drying rate as a function of identified influencing factors. conditions, Drying technologies, Modelling Equation, Photovoltaic, Dryers

INTRODUCTION

The heading should be typed in font size 10 Times New Roman in bold UPPERCASE. The introduction should follow the key words and should be as brief as possible; it should concern itself with a clear justification for the work undertaken and the underlying theory and hypothesis; a short review of literature in the field of study is obligatory although any exhaustive review properly belongs to the Discussion section. The introduction is limited to not more than two pages double spaced.

.Chua *et al.* (2003) recommended intermittent drying as the method best suited for heat sensitive bio product such as food but thin could have serious cost implication for farmers in the rural areas of Africa who are often poor and are subsistence level practitioner (Sharma *et al.,* 2007). According to Kays (1991) and Joshi *et al.* (2004), convective solar energy drying operation is governed mainly by the properties of the drying medium (heat energy, air movement, humidity, atmospheric pressure and vacuum and that of the product properties (moisture content, thickness, surface area and nature of the material)

MATERIALS AND METHODS

The heading should be typed with font size 10 Times New Roman and in bold UPPERCASE. This section describes concisely the methodology/procedures employed so that anyone wishing to replicate the trial can do so and obtain comparable results. Provide sufficient detail so as to remove any possible ambiguities with respect to design, treatments, measurements, analysis, etc. Where methods employed are commonly known in a given field, details should be omitted and the reference given instead. Modifications to known methodology must however be clearly described and explained.

RESULTS AND DISCUSSION
This section describes clearly the observations made and their concise interpretation; the discussion is probably the single most important section. Results should be presented in tables or figures and should be clearly explained in the text taking care to avoid unnecessary repetition of tabular data. Information presented in tables should not be repeated in figures, or vice versa. Standard deviations/errors help the reader to follow the trend of results and should be supplied whenever appropriate. The discussion should interpret observations i.e. explain the causes of events and not simply state the obvious. The discussion should include references to earlier or contemporary literature relevant to the topic studied; this way, a reviewer can decide on the merits of the manuscript.

Tables
Tables are to be numbered according to their sequence in the text and should also be referred to in the text before they are placed. The Tables should be inserted at the exact positions where they belong in the body of the paper.
Size and layout limitations do not allow for large tables. All Tables must have short but self-explanatory titles. Table numbers and titles should be placed at the top left of the Tables. Arabic numerals are to be used. Tables should have only three horizontal lines and no vertical line; however in certain circumstances an additional horizontal line may be applicable. Tables should be numbered from Table 1 and continued serially to 2, 3, etc.

Figures
Figures should be inserted at the exact positions where they belong in the body of the paper and should also be referred to in the text before they are placed. They should be clearly captioned and numbered in sequence below each figure. Line drawings must be done in black ink. Photocopies/scanned copies are not acceptable.

REFERENCES
Adnan Midillia, Haydar Kucukb., Mathematical modelling of thin layer drying of pistachio by using solar energy. *Energy Conversion and Management*. Volume 44, Issue 7, Pages 1111–1122.

Aghbashlo, M., Kianmehr, M.H., & Samimi-Akhljahani, H. (2008). Influence of Drying Conditions on The Effective Moisture Diffusivity, Energy of Activation And Energy Consumption During The Thin-Layer Drying Of Barberries Fruit. Energy Conversion And Management, 49, pp. 2865–2871

Akinboro F. G., Adejumobi L. A., Makinde.V., (2012[a]). Solar Energy Installation In Nigeria: Observations, Prospect, Problems and Solution. Transnational Journal of Science and Technology vol. 2, No.4 pg 73-84

Akinboro F.G., Mustapha A.O., (2012[b]). Low Solar Power Strategy For University Of Agriculture Abeokuta As A Model For Other Institutions In Developing Economy and Nigeria In General, (*Part 2*).Transnational Journal Of Science And Technology. Vol. 2, No.6. Pg 1-13

Babalis S. J., Belessiotis V.G., (2004). Influence of the drying conditions on the drying constants and moisture diffusivity during the thin-layer drying of figs. J. Food Eng., 65(3):449–58.

Calderwood D.,(1979). Rice Drying with solar Heat Transaction of ASAE 22(6) 1435-1438

Demir, V., Gunhan, T., Yagcioglu, A.K., Degirmencioglu, A., (2004). Mathematical modelling and the determination of some quality parameters of air-dried bay leave. Biosyst. Eng.88(3),325–335

Diamante L.M., Munro P.A., (1993). Mathematical modelling of the thin layer solar drying of sweet potato slice Solar Energy, 51, pp. 271–276

Ekechukwu O.V., Norton, B., (1999). Review of solar-energy drying systems II: an overview of solar drying technology. Energy Conversion and Management, 40, 615–655

Fauquet Claude and Fargette Denis (1990). "African Cassava Mosaic Virus: Etiology, Epidemiology, and Control

Hall S. S. (1988): Inventors and Discoveries, The Age of electricity, New York

Geographic Society

http://history-computer.com/ModernComputer/Basis/relay.html