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Title: Effect of Mass on Convective Heat Transfer Coefficient During Onion Flakes Drying

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**Abstract:** In this present study an open sun and greenhouse drying of onion flakes has been performed to study the effect of mass on convective heat transfer coefficient. Three sets of experiments with total quantity of onion as 300, 600 and 900 g were done. The onion was continuously dried for 33 h both in open sun and in the roof type even span greenhouse with floor area of 1.2 x 0.78 m<sup>2</sup>. Experiments were carried out during the months of October to December 2003 at IIT Delhi (28°35'N 72°12'E). Experiments were started at 8 am. The data obtained from experimentation under open sun and greenhouse conditions have been used to determine values of the constant 'C' and exponent 'n' by regression analysis and consequently, convective heat transfer coefficient. It is observed that there is a significant effect of mass on convective heat transfer coefficient for open as well as greenhouse drying. It is also observed that the rate of moisture evaporation in case of greenhouse drying is more than that in open sun drying during the off sunshine hours due to the stored energy inside the greenhouse. The experimental observations were analyzed in terms of percentage uncertainty also.

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