



## RESEARCH PAPER

# Performance study of solar tunnel dryer for medicinal plants

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**Abstract :** A solar tunnel dryer is a poly house framed structure covered with UV-stabilized polythene sheet, where agricultural and industrial products on large scale could be dried under at least partially controlled environment. A solar tunnel dryer accelerates and improves the drying process, it protects the product from insects and other pests-infestation thereby, reducing the contamination or product loss. As a result, the solar tunnel dryer lowers post-harvest losses compared to traditional sun drying. In this study, *Adhatoda vasica* and *Moringa oleifera* leaves were dried using a simple, low-cost solar tunnel drier and then it was compared with the open sun-dried products. The drying efficiency and the pick-up efficiency of the solar tunnel dryer for the drying of medicinal plant leaves was found to be 12.14% and 26.45%, respectively. The total drying cost of *Adhatoda vasica* and *Moringa oleifera* leaves was calculated as Rs. 16.26/- and Rs.16.87/- per kg, respectively as compared to the cost of sun drying which was Rs.114.1/- and Rs. 135.68/- per kg, respectively. The payback period of the dryer was found to be 1 year and 20 days.

**Key Words :** Solar tunnel dryer, Drying, *Adhatoda vasica*, *Moringa oleifera*, Micro-climate

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