

Review on drying of agricultural produce using solar assisted heat pump drying

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■ **ABSTRACT** : Sun drying is an oldest and traditional method used to dry and preserve agricultural products in tropical and sub-tropical countries. But the process is disadvantageous like labour intensive, time consuming and requires a large area for spreading the produce out to dry, loss of produce due to birds and animals, deterioration in harvested crops due to decomposition, insect attacks and fungi, etc. Also the required quality standards are not fulfilled in open sun drying. Solar drying technology offers an alternative which can process the vegetables and fruits in clean, hygienic and sanitary conditions to national and international standards with zero energy costs. It saves energy, time, occupies less area and improves product quality. The solar-assisted dryers are conventional dryers to which supplementary equipment is added to enable a significant proportion of the thermal energy required for drying to be replaced by solar energy. Heat pump dryers have been known to be energy efficient when used in conjunction with drying operations. The heat pump recirculation mode and solar mode can be used for drying the agricultural produce and allows the drying process to be continues in different weather conditions. In these dryers, a planned and generally optimized drying process can be achieved to obtain superior product quality and good economic performance.

■ **KEY WORDS** : Sun drying, Time consuming, Product quality, Solar assisted dryers, Heat pump, Energy efficient

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