

Thesis Title	Development of a Solar Dryer for Lemon-Grass
Thesis Credits	12
Candidate	Mr. Wichai Chantaraksa
Supervisors	Assoc. Prof. Dr. Jongjit Hirunlabh Assoc. Prof. Dr. Serm Junjai
Degree of Study	Master of Engineering
Department	Energy Technology
Academic Year	1999

Abstract

In this work, a solar dryer for lemon-grass was developed. The dryer consists of a flat plate solar collector, a drying chamber and an electrical blower. The plastic-covered solar collector with the collector area of 19 m^2 was used. The capacity of the drying chamber is 400 kg. Hot air from the solar collector is blown from the solar collector to the drying chamber to dry the lemon-grass. Four drying tests were conducted during 20 January – 22 February 1998. The results show that the dryer could be used to dry 200 kg of lemon-grass in 3 days. The quality of dried lemon-grass was also investigated. It is found that the oil content and color of dried lemon-grass are comparable with those of the lemon-grass required by food industry. The pay-back period of this dryer is found to be one year and five months. Thermal properties of lemon-grass were also investigated. An equipment was developed and used to study the thin layer drying of lemon-grass. The specific heat and sorption isotherm of lemon-grass were also determined.

Keywords : Thin layer / Thermal properties of lemon-grass / Color / Oil