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2012-2013

**Project Report
on**

“Design and Fabrication of Low Cost Food Grain Disinfestation System”

**Submitted in partial fulfillment for the award of degree
‘BACHELOR OF ENGINEERING’
IN**

MECHANICAL ENGINEERING

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Project work sponsored by



KARNATAKA STATE COUNCIL FOR SCIENCE AND TECHNOLOGY



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Abstract

Design and Fabrication of Low Cost Food Grain Disinfestation System

The agricultural land is getting reduced day by day due to urbanization. The yield is twice or thrice in a year but the consumption is continuous. The human population is increasing exponentially. The losses are high in food grains due to insects, rodents and moisture etc during storage. This is leading to uneven demand and supply pattern and has resulted in shortage and further adding to high prices of food grains. An effort is made in this project by employing an innovative method for the disinfestation of food grains by using Infrared Heater. The Infrared heating is an established process in the area of curing of paints, heating of buildings in cold climatic conditions for human comfort and other processing industries. The main advantage of this system is the food grains are not treated chemically they are only exposed to infrared radiation which is safe for human consumption. The technology is energy efficient as it directly heats the material without any losses to the surroundings. The infrared radiation is further reradiated by using reflector to avoid radiation losses. The Infrared in the wavelength range of 3 to 8 micrometer is best suited for the said purpose. The system has the advantage of adjusting the required temperature by using PID controller which automatically detects the temperature by using a thermocouple and rate of feeding is controlled manually using a belt conveyor. This helps in using the system for different types of grains and pulses according to their requirement of disinfestation temperature and time of exposure to Infrared Radiation. The wavelength of infrared heater and rate of feeding has an important effect on the quality of foodgrains. This system will help the farmers and agriculturists in disinfesting and drying of food grains by removing the moisture at low-cost. It can be scaled up to any required level and further level of automation can be made. This will also help food industries to dry the food grains and other food products.