Humidity controlling device HCD

By

Lina Jaafreh – Nadeen Adaileh

Supervisor

Wisam Abu Laila – Hazem Hamdan

The Jubilee School

Abstract

This study aimed to examine the effectiveness of Humidity controlling device (HCD) on controlling humidity levels of domestic environment, to control the pathogens and mold percentage, and to examine Jordanian zeolite tuff adsorption capacity of water vapour from the air, that we can use it instead of compressors in dehumidifiers, the study methodology contained three phases. First, a survey was designed and conducted to discover how much the problem of mold, viruses and bacteria is serious, and the results show that too many people suffer from mold and they would buy a device that help them to solve the problem. Second, The HCD device was designed to enhance the indoor environment by using the humidifier and dehumidifier method. The device measures the humidity level to check if it is normal. Afterwards, if the humidity level is more than 47% RH the dehumidifier part will work by adsorbing moisture from air using Jordanian zeolite tuff that has less effectiveness compared to the Pure zeolite, and if the opposite, the humidifier will increase moisture using ultrasonic waves in evaporating water. Third, a sample of 2 rooms with volume of 0.024 m^3(incubator) and 4.08 m^3(Normal room) chosen for humidity experiment. Results have shown that each 50gram of zeolite tuff (10%), its mass was increased by 1g/hour and that the incubator humidity level with 50gram of Jordanian zeoletic tuff decreased 4-5%RH each hour. Lower temperature and humidity considered as contributing factors in the development of HRV infections. [2]