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NEW OPTIONS FOR SOLAR DRYERS BASED ON ALTERNATIVE ENERGY SOURCES

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A B S T R A C T	K E Y W O R D S
This article analyzes the optimal options for making solar dryers and the optimal options for different structured solar dryers and selects an economically efficient option.	solar dryer, drying camera, query pipe, dried fruit, internal temperature, ventilation window. Photo, solar radiation

When using solar energy, it is important to know how long the selected place will be illuminated during the year, how much energy will fall within a unit's time, or, in other words, the radiation mode of the place.

Because solar energy is ecologically clean energy, it is also used in greenhouses, freshwater pumping, drying fruits and vegetables, obtaining electricity in solar batteries, and other fields [12]. One of the main problems facing experts in renewable energy today is to improve the efficiency of existing solar installations.

Despite extensive research in the field of drying agricultural products using solar energy, there are still problems that have not yet been solved. (Matthew 24:14; 28:19, 20) Jehovah's Witnesses would be pleased to discuss these protrusions. Fruits and vegetables are known to have long dried up in open areas with sunlight. This method is usually called the weather method. Even now, fruits and vegetables are dried in day-to-day mode. This method is simple and convenient, and fruits are carried out without additional energy waste with sunlight during cooking season. In order to obtain a quality dried product, the sun and the sun are also dried in heating fruit dryers. (Matthew 24:14; 28:19, 20) Such dryer devices operate at the expense of the heat energy of organic fuels.

Dryers based on renewable energy sources are also used to dry fruits and vegetables. If drying is carried out using these dryers, it is known that the amount of organic fuel resources will be exceeded and the level of pollution with environmental gases will decrease[16].

The main requirement for all types of dryers is to intensify the drying process, increase their useful work coefficients, and improve the quality indicators of dried products.

In solar dryers, the temperature regime depends primarily on solar radiation, external temperature, air humidity, dryer type, and other factors. These factors change during the month. Therefore, managing the temperature-humidity regime of sun dryers is one of the most important problems. The quality of dried fruits and vegetables will depend on the temperature-humidity regime in the drying chamber, the initial processing of fruits and other effects. It envisages the creation of an automated solar fruit dryer that works continuously in order to solve this issue

An overview of another of the devices to be studied

The bullet with paddons mounted in the middle of it is connected to a motor with a capacity of 35 Vt, as shown in Figure 1. The source of operation of the engine is the conversion of solar energy into electricity using a camera. The engine moves circularly, rotating the paddies with the product. The resulting embryo was allowed to develop in nutrients and then inserted into her womb, where it implanted. (speed 0.015 months/s).

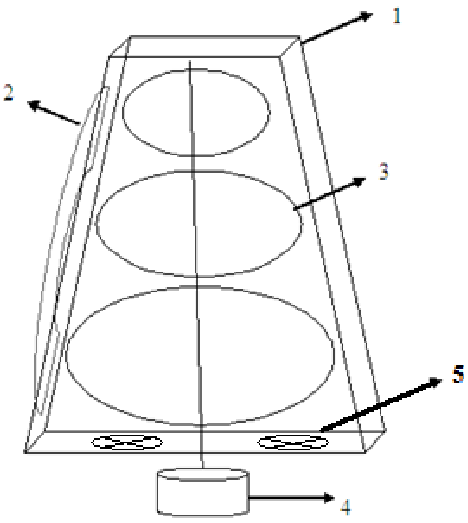

Figure 1: General view of the solar dryer.1 transparent glass; 2nd air-conditioning pipe; 3rd product base (paddon) space, engine that rotats paddies with 4 products installed; 5th ventilator.

The radius of the lower paddon is 0.45 m, the radius of the middle paddon is 0.40 m, and the radius of the paddon in the upper part is 0.35 m. The surface of the paddies can be calculated as follows.

$$S_1 = \pi r^2 = 3.14 * 0.45^2 = 0.6\, m^2$$
$$S_2 = \pi r^2 = 3.14 * 0.4^2 = 0.5\, m^2$$
$$S_3 = \pi r^2 = 3.14 * 0.35^2 = 0.12\, m^2$$

The total useful surface of the device is as follows.

$$S=S_1+S_2+S_3=0.6+0.\ 5+0.12=1.2m^2$$

The product cost to the above device is as follows. You can place 1.5-2.0 kg (orchids, melons, tomatoes) products on the top paddon, 2.5-3 kg on the middle paddon, 3.5-4 kg on the lower paddon, and 4-4.5 kg (orchids, melons, tomatoes) at the bottom of the device. From the device it is possible to dry 7-8 kg of product at once.

Figure 9. The model of the sun's fruit dryer.

The model of the sun's fruit dryer consists of the following parts. A special microcontroller ATмega 328 is installed to ensure the permanent rotation of the dryer. The controller is designed to control and control the number of motor rotations. A solar panel is installed to provide energy. A ventilator is installed to trigger hot air in the drying cell. The request pipe is connected to the camera to ensure constant air sercopulation.

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