



The Harmonise Box Solar Oven

146. Mpendae

Rahma S. Jumanne and Suleiman S. Khamis

Introduction:

A solar oven is simple equipment and can be used for cooking, pasteurize foods, drinks and hydrating seeds, spices, herbs vegetables and even fruits. A mirrored surface with light high specula reflectivity is used to concentrate light from the sun onto a small cooking area, producing temperatures high enough. They are typically designed to achieve temperature of 150F (65C) baking temperature to 750F (400C) grilling, scaring temperature on a sun day.

The aim of this project is to reduce cost on using other resources like electricity, gases, charcoal, modern-electrical equipment and firewood. We investigated the bases of solar oven mostly its importance and needs to our people in the societies for different purposes.



Method:

Step #1 Cut the large box using a sharp scissors, place a small box inside a larger box. Fill the gap with shredded newspapers.

Step #2 Cover the inner part of boxes with aluminum foil, so that the heat will be reflected within the isolated closed system.

Step #3 Line the inside of small box with perfect black board for higher heat absorption.

Step #4 Make a reflector slit and place to the top of box gluing with trapper (mirror or wrapping paper)

Step#5 Enclose cooking pot and oven thermometer for recording temperature in plastic bag and at the middle of oven.

Materials used

1. Tri-fold presentation board or box
2. Sharp knife or scissors
3. Wide, heavy-weight aluminum foil
4. Glue stick and clear packing tape
5. Wrapping paper/glass
6. Cooking pot



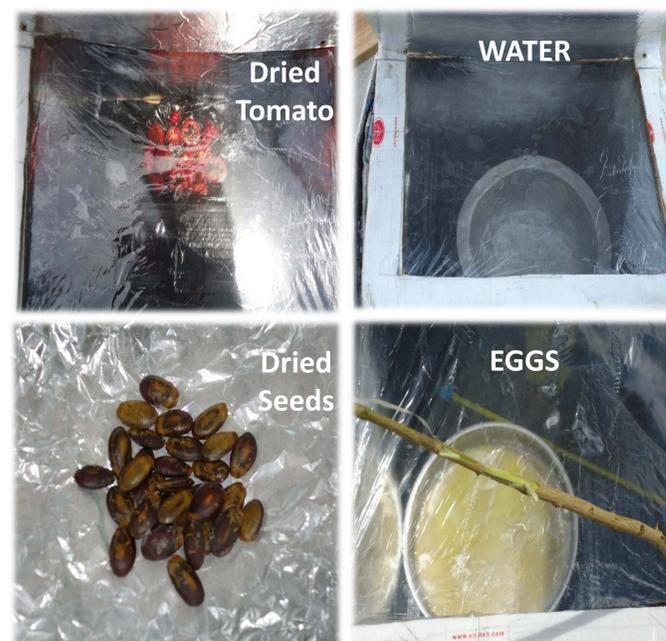
Results:

Typically the box oven can reach temperature of 350F (176C) one advantage of cooking in solar oven is that you can leave food without supervision it is not always necessary to achieve higher temperature to cook food, cooking at lower temperature it allows!

Temperature °C	Time in Seconds	Specific uses
57	1980	Germ cannot grow
78	4020	Water pasteurize
92	6000	Food Pasteurize

The oven ac can be used to:

1. Boil or pasteurize water, drinks and food for personal hygiene .
2. Dry and dehydrate things - seeds, spices, fruits, grains herbs and vegetables.



Conclusions

Cooking with solar energy remains a fuel saving technique that can provide definite situations of fuel scarcity. Solar ovens, especially boxes solar ovens, can be made locally, saving costs to the people.

We suggest that our idea will be useful for all of the generations to come, and people within the societies needs to be ready for changing lives by using the best and simple technology for their own benefits.

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References

www.sunoven.com

www.wikipedia.org/wiki/solar_cooker

www.humboldt-e-dal-cat

Eric weisstains world of mathematic-1999-CRC
Pess.uc,1999-2003 wolfram research.inc
<http://mathworld.wolfram.com/parabola.html>