

Solar food processing using an 8 m² Scheffler concentrator

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Summary

With growing world population, global energy and food consumptions are expected to further increase. While biomass is the main source of fuel used for cooking in developing countries, 50% of produced food gets spoiled after harvest. Small processing facility might improve energy and food and use efficiency, especially in rural areas of poorer countries. The use of solar thermal energy for industrial process he at applications has an undeveloped potential, especially for the low and medium range temperature applications which are common in the food processing industry. In this research, solar heat from a 8 m² scheffler concentrator was used directly to process high acid fruits and vegetables. Whole tomatoes and plums were incontainer pasteurized, while fruitjams were cooked and hot 11 pasteurized. The usability of the present system was experimented, the energy eciency and processing capacity evaluated. Possible improvements of the system and the potential use of this technology in the food processing sector is discussed in view of both low and high technological implementations. The scheffler concentrator has demonstrated a great potential for both low and high technological implementations as well as for big and small scale applications. The implementation of such technologies should be promoted to achieve ecological and sustainable lifestyle improvement in both poorer and richer contexts.