



## Simulation of a solar thermal collector of parabolic dish for drying process of calcium propionate

Álvaro Realpe\*, Randy Reina, Andrea Figueroa

Department of Chemical Engineering, Research Group of Modeling of Particles and Processes, Engineering Faculty, Universidad de Cartagena, Colombia

**Abstract :** In this paper was simulated a solar energy concentrator and its overall thermal energy generation at different operating conditions was evaluated. The system consist of three solar collectors of parabolic dish coupled to a plate heat exchanger. It was found that the solar collector generate between 0.96 and 1.95 kg/s of air that was heated from a room temperature of 30°C to 170 ° C. This represents a saving of 63.13 % in the consumption of natural gas of a dryer used in the drying process. It was concluded that the city of Cartagena presents a favorable environment for the development of technologies such as solar collectors of parabolic dish, which use solar energy to generate thermal energy.

**Keywords:** Solar collector, calcium propionate, parabolic dish, solar energy simulation.

Álvaro Realpe *et al* /International Journal of ChemTech Research, 2016,9(8),pp 438-446.

\*\*\*\*\*