

Abstract

Algeria encourages the development of renewable energies and in particular photovoltaic solar energy and this with an aim of answering at the request of electricity of the most stripped places and where the advance of electricity is difficult. Many scientists and researchers do not cease developing various methods of calculating for collect the maximum solar radiation and to optimize the electric power extracted of the photovoltaic generators. We develop in our study the effect of the slope and the orientation on the maximum power extracted from a photovoltaic module. We present the simulation of the sun trajectory tracking with a PV panel, keeping continuously the panel surface oriented face the sun. Three positions of the PV panel are considered, normal (full tracking), tilted fixed and horizontal. The aim of this study is to maintain the panel perpendicular to the solar rays, therefore to define the solar angles azimuth (α), altitude (h) and the inclination θ of the PV panel at each hour of the day. For that we carried the programme of the sun trajectory tracking along the day using the Matlab software. We compare the curves obtained, of solar flux, the characteristics current-tension $I(V)$ and the characteristics power-tension $P(V)$ for the studied cases. Our results are in good agreement with those experimental