

Photovoltaic Supplied MHD Desalination System for Agricultural Uses

Water is a critical input to agricultural production and plays an important role in food security. Producers are increasingly turning to new agricultural technologies to overcome its scarcity problem. To overcome these situations, desalinated seawater and drip-irrigation system—when properly designed, maintained and operated—can be a production asset in gardens and small farms. In this context, as shown in fig.1, we present a scientific approach to designing a new device immersed directly into a tank filled with salted solution applied for low-flow drip irrigation that plays two roles at once: the reduction in water salinity and the pumping towards the area to be watered. The results obtained in this approach, after having carried out the modeling and the spatiotemporal simulation of the magneto hydrodynamic multiphysics coupling - mass transfer by the Comsol Multiphysics software, have shown that there is a net flow of solution accompanied by a decrease in the concentration of the ions that we wish to eliminate at the outlet.