Technologies for terraforming of extraterrestrial atmospheres with high CO2 contents can be applied to the decrease of CO2 greenhouse gas on our planet. D.A. Albarracin[1] and F. E. Medina[2], [1] Space Generation Advisory Council (SGAC) NPOC (Bogota Colombia Cr5a 29 No 71 – 41 los Alcazares e-mail diego.gonzalez@spacegeneration.org), [2]Affiliation for second author (Bogota Colombia Cr5a 29 No 71 – 41 los Alcazares e-mail administracion@urbanlab.com.co).

Introduction:

One of the main problems resulting from energy consumption facing today's society is its degree of influence on the greenhouse effect and the Climate change. The anthropogenic CO2 is produced mainly in the Combustion of fossil energy resources and has already reached 400 ppm in the atmosphere.

The current geopolitical and socioeconomic situation of countries around the world has not led to significant agreements on reducing greenhouse gas emissions to mitigate the climatic consequences that we are living and according to the International Energy Agency, CO2 emissions will increase 130% by 2050 which may adversely affect the habitability of the human race on this planet. [1]

That is why the development of technologies for terraforming of extraterrestrial atmospheres with high CO2 contents can be applied to the decrease of this greenhouse gas on our planet.

The biologist Diego Albarracin and the engineer Enrique Medina are working on the development and application of photobioreactors of microalgae Spirulina platensis (Arthrospira platensis) in the city of Bogota Colombia associated with individual and mass transport systems which seeks to reduce emissions of this gas, fixing it through the photosynthetic processes in the biomass of the microrganism, producing O2 and a 50-70 % crude protein by dry weight of algae produced. [2]

This type of photobioreactors can be implemented for the aerospace industry, to recycle confined atmospheres and produce high quality food for space exploration and poor population in developing countries.

References:

[1] International Energy Agency (IEA) (2011) CO2 Emissions from Fuel Combustion , 538 pp.

[2] Vonshak, A. and Tomaselli, L. (2000). Arthrospìra (Spirulina): Systematics and Ecophysiology. En The ecology of Cyanobacteria. Kluwer Academic. Dordrecht, holanda, pp. 505-522.