



Introduction of Populations of Earthworms (*Eisenia sp.*) in Pico de Orizaba and its Possible Use for the Fertilization of Mars

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Water is very important for the development of life, from the simplest microorganisms to the complex beings of multi cellular type, as it is the case of the earthworm with its different sorts and species. Earthworms can be taken as an option to be pioneering among the so many multi cellular organisms that are feasible to be used in Mars for its terraformation, and these can support as well the process to populate the planet with superior vegetation, like the pines of high mountain of different species, and in particular the species *Pinus hartwegii* and other ones that adapted to high altitude, extreme low pressures and temperatures. One of the advantages of the earthworms is in his compost, that is fast for the optimal soil fertilization, has antibiotic, antiviral, filtrating and fungicide of ample spectrum qualities and a performance to make special filtrates in grounds with heavy metals that allow them to live in mud totally contaminated. Therefore we have considered these organisms as a reasonable option for their introduction in the Martian ground, being one of the first candidates of multi cellular type to be used to fertilize the arid Mars ground while the pre biotic atmosphere is taking place. For the work that is reported here we have chosen the earthworm of genera *Eisenia sp* which is introduced in high mountain environments to study its etology and population behavior in the barren ground, as well as its ecology at different soil depths (10, 20, 30 and 40 cm) and extreme temperatures in order to understand its adaptation and accomplishment of its ecological niches and positioning of the same one. The study is made both in the northern face and in the southern face of Pico de Orizaba, Mexico (19°N), above tree line. Population fluctuations are correlated with some climatologic variables, such as soil temperature at several depths, relative humidity, etc.