POSTDOCTORAL FELLOWSHIP IN ISOTOPIC ECOLOGY

CH_4 emission and consumption in the tropical ecosystem, via fluxes, vertical profiles of CH_4, and the ^{13}C and D isotopic compositions

- as a part of the global Collaborative Research: Dimensions US-BIOTA-São Paulo: Integrating the dimensions of microbial biodiversity across land use change in tropical forests –

Home Institution: *Isotopic Ecology,* Centre for Nuclear Energy in Agriculture – University of São Paulo (*www.cena.usp.br*),

Supervisor: PLINIO BARBOSA DE CAMARGO (Professor at CENA - USP)

Project Scope: This project is guided by the question: "Integration of the methane for the production and consumption functional dimensions will allow us to predict the effect of land use changes to the CH_4 cycle?". This proposal aims at evaluating the aspects of the methane production, by measuring the rate of production or methane concentration in the soil. Also, we aim at verifying how this rate/concentration varies with substrate availability and environmental conditions over time, to determine the sensitivity of methane production to the soil changes. Importantly, the isotopic composition of the flux or soil gas can be used to infer the relative contribution of different biochemical pathways in the production of methane at a particular site. Taken together, these approaches may provide essential information regarding the functional dimension of microbial biodiversity, and its relationship to the taxonomic and genetic dimensions. We will use these approaches to determine the responses of microbial biodiversity and functional activities to land use changes in Amazon rainforest soils. Our working hypothesis is that the Amazonian soils harbor a particular set of microorganisms, which have specific functioning on methane consumption/emission according to ecosystems.

Desirable Skills: The post-doc researcher will be involved in all steps of production and consumption of methane along the time. In order to attend this demand, the Post-doc researcher should present familiarity with gas exchange and also have skills on environmental changes in the Amazon. Participation of expeditions is required, for the practical work on collecting gases of CH_4 for analysis and integration with other results are very desirable. New equipment for CH_4 isotope detection will be applied and the PD will be trained together with students from USA. Thus, the proficiency in Portuguese and English is desirable because it will facilitate the interaction with other students which are already working on the project. It is also recognized the capacity for innovation within the initially proposed work.

How to Apply: Applications will be made exclusively by e-mail, with the documentation attached. Applications should be directed to Prof. Dr. Plinio Barbosa de Camargo (pcamargo@cena.usp.br) and Prof. Tsai Siu Mui (tsai@cena.usp.br) until July 14th, 2017. For application, please attach to the e-mail:

i) Motivation Letter, ii) Two reference letters; iii) Curriculum with published articles and evidencing the abilities to conduce the project, iv) Abstract of the PhD thesis

Selection: The selection will be made primarily based on the curriculum of the candidates, and further by the personal interviewing process (maximum of 5 candidates selected for this stage), where the abilities in the issues will be verified and also other commonalities will be discussed.

Result of Selection: July 21th, 2017

Starting Date: August 1st 2017 (*duration of 2 years*)

More information about the grant can be obtained at website http://www.fapesp.br/en/5427