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Fluxes of Plant-Mineral Nutrients in Subsistence Agriculture of the Indigenous Community of Sarayaku

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Abstract

Terra Preta and knowledge about the nutrient cycle of indigenous agriculture may be crucial for the survival of indigenous villages and the protection of the Amazon rain forest. Thus, there is a growing scientific interest in Terra Preta resulting in numerous publications on its relevance and its manufacturing. However, there is little evidence on the opportunities Terra Preta offers for sustainable indigenous way of life. Extraction of natural resources, growing communities and the attractions of capitalist luxury are a threat to many indigenous villages and their traditional lifestyle. Only a sustainable and productive agriculture puts the indigenous villages in a position to maintain their lifestyle and counteract against exploitation of natural resources and deforestation. In line with this, recent studies showed that Terra Preta can often be found next to precolonial large villages in the interior of the rainforest.

The present study aims to analyse the nutrient cycles of one local family and thereby create ideas how to manufacture Terra Preta. It was conducted in Sarayaku, an indigenous village famous for its resistance against extraction of oil. Therefore were taken samples among others of residues of food, the traditional beverage “Chicha”, ash, sawdust, sand and clay of a river crossing the village and analysed to obtain an almost total balance of the macronutrients.

With regard to the soil quality, a proposal for reusing these nutrients by producing Terra Preta is made. The soil-degrading practice of slash-and-burn cultivation, which is especially problematic in growing communities, may thereby be replaced by creating fertile gardens.

First results show that the combination of residues of the food, sawdust and ash among other of the family’s residues seem to be a good basis with probably all important nutrients needed for agriculture. Also, obtaining the necessary coal to produce Terra Preta turned out to be no problem. The role of incorporating faeces and clay of a nearby river, which carries nutrients from the Andes, will also be elucidated.

Keywords: Ecuadorian Amazon, nutrient cycles, river sediments, Terra Preta, traditional agriculture