Do you know that Charcoal makes soil fertile?

by Aishika Iromi

Biochar has become a famous soil amendment worldwide in agriculture during the last two decades. Biochar is similar to charcoal in appearance but in terms of chemical structure it differs from charcoal. Biochar is made by heating organic materials at a temperature nearly 300 °C in the presence of limited or no oxygen. This process is called pyrolysis. Raw materials used for biochar production are abundant and few examples for such materials are wheat straw, corn straw, wood chips, melon seed shell, peanut shell, rice husk, coconut shell, livestock and poultry manure, kitchen waste, sludge and fruit skin. Biochar can be prepared easily even in the home in a kiln, stove, pit or a heap.

Though the biochar technology seems to be new, it is not so!!! There are evidences that biochar had been used 2000 years back by Precolumbian Amazonians. They improved infertile Amazonian soils by adding a mixture of charcoal, bone, broken pottery, compost and manure. These improved fertile soils were called as Terra preta, which means the dark earth. Many archaeologists have observed Terra preta in their archeological explorations. They believe Tetra preta soils have been formed by burning forest vegetation. By using satellite images, Brazilian archaeologist Eduardo Neves was able to observe subtle differences between the canopy above Terra preta sites and the canopy outside of them in the forest. The vegetation grows better in Tetra preta soils as they are more fertile compared to neighboring areas, indicating long-lasting benefits of the incorporation of biochar to the soil.

Production of biochar by farmers of Sri Lanka

Modern science explains how biochar makes a soil more fertile than other soil amendments. Biochar has lots of tiny spaces, or microscopic pores, thus it behaves like a hard sponge when it is in the soil. Therefore, biochar can hold more water than a similar quantity of soil. Along with soil water, it also can hold nutrients and provides a safe habitat for soil organisms.

Biochar adds carbon to the soil which provides many benefits. Soil organisms could use carbon in biochar for their growth. Biochar reduces net emissions of carbon dioxide gas from soil and retains carbon in soil. Besides, emissions of nitrous oxide (N2O) and methane (CH4), two potent greenhouse gases from