Effect of Nutrient Exchange capacities in Cinnamon (Cinnamomum zeylanicum Blume) Wood Biochar prepared by different methods

In commercial level, most of the growers used higher dose of inorganic fertilizers causing soil degradation. More inorganic fertilizers caused nutrient retention and leaching problems. In Sri Lanka, cinnamon used mostly as a firewood. Present study aims to test the effect to different methods of biochar preparation using cinnamon wood in relation to nutrient exchange properties. Biochar was prepared using different methods. Muffle furnace method 1 hour at 600 celsius (T2), cone pit method with burning time at 50 minutes (T3) and 70 minutes (T4), double barrel method with burning time at 70 minutes (T5) and 90 minutes (T6) used as treatments. Sieved subsoil and biochar mixed 1:1 ratio as volume basis. Control treatments (T1) only filled with subsoil. Media was filled in to the 18 columns and 1.7L of water was added to each column for saturation. Water was drained out after 24 hours. Beginning and the middle of the experiment, 600ml of Nutrient solution (20% Urea, 10% Muriate of Potash and 10% Triple Supper Phosphate) was added into each column and drained out after 24 hours. One liter of water was added and drained out after 24 hours. It was done continuously for 2-month period and every 8 day intervals samples were taken for the analysis. Initial media of cinnamon wood biochar consist with nutrients (quantities should be given). Nitrogen lose from the soil can dramatically be reduced by treating the soil with T5 and T6 among the best in terms of nitrogen retention in the soil (what is the reason?? Should be mentioned). Phosphorus was lost in most treatments (how much??); however available phosphorus has in T6 in final media (Qunatity??). In addition to the retention of nitrogen, phosphorus and potassium, biochar also contributes P and K to the soil (did you measure them? Write it as values and possible reasons for releasing P and K). Cinnamon wood biochar preparation methods affect nutrient retention as soil amendment (why??). cinnamon biochar prepared by different method should tested to get idea about the characterizations using FTIR.