Abstract

This study was conducted to test the effect of Rhizobium inoculation on 4 tree legumes: Leucaena leucocephala, Calliandra calothyrsus, Sesbania sesban (commonly used in intercropping systems in Kenya) and Robinia pseudoacacia (a temperate tree legume). Early growth patterns, intercropping interactions, decomposition and mulching characteristics were investigated with respect to soil and plant Nitrogen (N) nutrition. it was found that Rhizobium inoculation increase; shoot N concentration in all species (72%, 86%, 68% and 34% respectively), shoot N content in L. leucocephala and C. calothyrsus, nodule weight in C. calothyrsus and nitrate in soils in which R. pseudoacacia was grown. In barley intercropped with C. calothyrsus and S. sesban, barley ear nitrogen concentration, total N content, grain yield, N concentration and N content were also increased. Inoculation also increased decomposition of L. leucocephala and R. pseudoacacia leaves and barley ear N concentration and N content in soil mulched with mixed leaves of L. leucocephala.