

Abstract

The effect of using bio char to improve effective biofertilizer containing N-fixer, P and K solubilizers and PGPR, soil fertility and to increase productivity of plant were studied during 2015-2016 at Ratchaburi province. The experimental design was RCBD with 7 treatments and 3 replications. There were (1) control method (without fertilizer), (2) chemical fertilizer recommend by Department of Agriculture (CF), (3) 75 % chemical fertilizer + LDD-12 300 kg/rai, (4) 75 % chemical fertilizer + LDD-12 liquid 300 liter/rai, (5) 75 % chemical fertilizer + LDD 12 mix bio cha 1,000 kg/rai, (6) 75 % chemical fertilizer + LDD 12 mix bio cha 1,500 kg/rai (7) 75 % chemical fertilizer + LDD 12 mix bio cha 2,000 kg/rai. The results showed that increasing microbial biomass of liquid fertilizer LDD 12 by culture in molasses alcohol slop (10%V/V) and molasses (5%V/V) added oxygen for 48 hours in fermenter, is the best method for microbial enrichment. Before using in field, liquid fertilizer LDD 12 was mixed with bio cha ratio 2 : 1 and soaked for 1 hour. For field experiment in Kale plantation, application of 100 % chemical fertilizer with 1,500 kg/rai of bio cha mixed with liquid fertilizer LDD 12 increased plant growth, crop yield, organic matter and potassium in soil. From this result, using 1,500 kg/rai of bio cha mixed with liquid fertilizer LDD 12 could reduce using 25 % chemical fertilizer.