

Abstract

Study on Nitrogen and Phosphorus absorption capability of soil for organic tapioca cultivation system at Tambon Makluea mai Amphur Soongnern Nakornratchasima province consisted of 10 treatments. Four composts, two liquid manures and cowpea were used as green manure. The soil samples were collected at 2 levels 0 - 20 cm. and 20 - 60 cm. for each treatment. The study on absorption capability of Phosphorus, Ammonium - Nitrogen and Nitrate - Nitrogen, was carried out. The results showed that treatment 4 that consisted of compost (tapioca peel + tapioca cake + cowdung) + (liquid manure with LDD2) amount 3,000 kg/rai gave highest yield of 6.18 ton/rai. The results of every composts showed that C/N ratio were appropriate for tapioca planting. The compost with formula 3 yielded highest cation exchange capability, organic matter and total nitrogen of 5.60 cmol/kg, 4.49% and 0.17%, respectively.

Study on absorption capability of phosphorus on topsoil and subsoil using treatment 8 consisting of cowpea + compost (tapioca peel + tapioca cake + chicken manure) + liquid manure yielded the highest absorption with a constant of balancing absorption (b) of 0.2826 and 0.2840, respectively, and with a capacity of absorption (a) of 0.43×10^{-4} and 0.42×10^{-4} , respectively. Absorption capability of Ammonium - Nitrogen on topsoil of treatment 4 was highest with constant of balancing absorption (b) of 0.0630 and capacity of absorption (a) of 1.95×10^{-5} on subsoil, Treatment 8 consisting of cowpea + compost (tapioca peel + tapioca cake + chicken manure) + liquid manure showed the highest constant of balancing absorption (b) of 0.0615 and capacity of absorption (a) of 1.80×10^{-5} . The absorption capability of Nitrate - Nitrogen on topsoil and subsoil of treatment 7 consisting of cowpea + compost (tapioca peel + tapioca cake + cowdung) + (liquid manure with LDD2) showed the highest constant of balancing absorption (b) of 0.0597 and 0.0506, respectively, and capacity of absorption (a) of 2.92 and 2.70, respectively. Treatment 4 gave the highest yield and should be promoted to be used by farmers that can apply knowledge for organic tapioca cultivation system in the locality.

Also tapioca peel and cake should be recycled as composts in order to reduce the use of chemical fertilizers in agriculture.