Abstract

The study on the influence of soil texture on paraquat adsorption capability was conducted in Nam Phong (Ng), Roi-et (Re), and Satuk (Suk) soil series. By considering pH values, organic matter and charcoal contents at 5 levels.

Satuk soil series was sandy soil and Nam Phong and Roi-et soil series was loamy sand soil. The study of adsorption by using Frundlich isotherm showed that Roi-et soil series had the highest adsorption capacity (K_F) of 0.819 and the slope (1/n) of 0.342. Satuk soil series had lowest K_F was 0.106 and the slope (1/n) 0.462. The adsorption by using the Langmuir isotherm showed that Nam Phong soil series had the highest adsorption capacity (K_L) was 1.208 and the maximum adsorption capacity (q_m) was 7.246. Satuk soil series had the lowest K_L was 0.328 and q_m was 0.360

The paraguat adsorption capability which adjusted pH range in 5 levels (pH 4-5, pH 5-6, pH 6-7, pH 7-8 and pH 8-9) by using Frundlich and Langmuir isotherm. It showed that in Roi-et soil series which the pH range between 8-9 had the highest K_{F} and $\rm K_{\rm L}$ was 0.612 and 0.454, respectively. The 1/n and $\rm q_{\rm m}$ of Roi-et soil series was 0.680 and 1.942, respectively. Nam Phong soil series which the pH range between 4-5 had the lowest $K_{\scriptscriptstyle F}$ and $K_{\scriptscriptstyle L}$ was 0.060 and 0.015, respectively. The 1/n and $q_{\scriptscriptstyle m}$ of Nam Phong soil series was 0.994 and 4.587, respectively. The organic matter which adjusted into 5 levels (1%, 2%, 3%, 4% and 5%) showed that Roi-et soil series which the organic matter was 5% had the highest K_F and K_L was 0.498 and 0.497, respectively. The 1/n and q_m of Roi-et soil series was 0.680 and 1.127, respectively. Satuk soil series had the lowest K was 0.114, while 1/n and $\ensuremath{q_{\rm m}}$ was 0.994 and 1.383, respectively. The soil was adjusted the biochar into 5 levels (0.1%, 0.5%, 1%, 2% and 4%) showed that Nam-Phong soil series which the biochar was 0.1 had the highest K_F was 1.500. Roi-et soil series which the biochar was 4% had the highest $\rm K_L$ was 2.626, while 1/n and $\rm q_m$ was 0.463 and 0.858, respectively. Satuk soil series which the biochar was 0.1% had the lowest K_F and K_L was 0.103 and 0.221, respectively. The 1/n and q_m of Satuk soil series was 0.352 and 12.987, respectively.

From K_F and K_L of every influence can see that biochar had the most influence in adsorption of paraquat. The result showed if the pH range, organic matter and biochar in soil increased, the adsorption of paraquat was increased too.