## Abstract


The study on the paraquat adsorption capacity of soil and sediment of Muab sub basin of the Nan river was carried out during March to December 2009, by considering pH, organic matter and charcoal content at 3 levels. The study compared four soil series, namely, Ban Chong (Bg), Mae Rim (Mr), Hang Dong (Hd) and Complex steep slope soil series (SC).

The results showed that the Freundlich adsorption equation of Mae Rim soil series had the maximum adsorption capacity ($K_F$) of 0.6792 with $R^2$ of 0.985 Ban Chong soil series had the least $K_F$ of 0.6180 with $R^2$ of 0.960. Under the pH conditions of 3-4, 5-6 and 7-8, the complex steep slope soil series had the maximum values of $K_F$ of 0.5861, 0.7691 and 0.8974, respectively. Ban Chong soil series had the least values of $K_F$ of 0.5662, 0.6561 and 0.7691, respectively. Under the condition with organic matters of 3, 4 and 5 %, Mae Rim soil series had the maximum values of $K_F$ of 0.7047, 0.8110 and 0.9977, respectively. Similarly, Ban Chong soil series had the least $K_F$ of 0.6353, 0.6607 and 0.7762, respectively. Moreover, under the condition with charcoal content of 1, 5 and 10 %, Mae Rim soil series had the maximum $K_F$ of 0.8670, 0.9441 and 1.0544, respectively. Ban Chong soil series had the least $K_F$ of 0.8453, 0.9376 and 0.9863, respectively.

The study showed that the $K_F$ value increased with the values of pH, organic matter and charcoal content. Soil and water concervation is, therefore, needed. Soil treatment to increase pH and organic matter is also recommended, particularly in the areas where paraquats are used to get rid of weeds. These would help to adsorb paraquat  not to enter into waterways. The $K_F$ of sediment of the Pa sub river basin was found to be of maximum value of 3.2285 whereas the minimum $K_F$ of Twai sub river basin was 2.0710. Care must be exercized in the use of paraquat in the Twai river basin.