施用不同抗蝕資材對熱帶坡耕地沖蝕潛勢之影響

王重棋[1]　簡士濠[2]*

摘　要　本研究主要評估分別將生物炭、聚丙烯醯胺(Polyacrylamide, PAM)及堆肥施入坡度 5%之紅壤後，各改良試劑在天然降雨下對土壤抗沖蝕潛勢之影響。試驗共分堆肥 (1%)、生物炭 (2%及 4%)、PAM (10 ppm 及 50 ppm)、混合處理(生物炭 2%、4%與堆肥 1%)及控制組，分別於雨季下進行 2 個月之現地沖蝕試驗及逕流水收集。結果顯示，第 1 個月(月降雨強度 11.7 mm/hr)內，2%與 4%生物炭處理之沖蝕量較控制組高出 80%及 140%，而逕流水中沉積物濃度亦高出約 40%。第 2 個月內 (月降雨強度 25.4mm/hr)，生物炭處理沖蝕量仍較控制組高出 30%-40%，但逕流水中沉積物濃度降低 4%-10%。相較於生物炭處理，PAM (50 ppm)處理具較佳之抗蝕效果，以第 2 月效果最為明顯，沖蝕量為控制組之 67%，而懸浮濃度為控制組之 42%。

關鍵詞：生物炭、聚丙烯醯胺、堆肥、沖蝕潛勢。

Effects of Soil Amendments on Erosion Potential in a Tropical Region

Tsung-Chi Wang[1]　Shih-Hao Jien[2]*

ABSTRACT This Study aims to apply biochar, polyacrylamide (PAM) and a commercial compost in a red soil with a slope gradient of 5% for 2 months. Eight treatments were performed in this study including control, compost (1%), biochar (2%, 4%), PAM (10 ppm and 50 ppm) and co-applying with compost (1%) and biochar (2%, 4%). The results showed that the highest amounts of soil loss were found in the treatments of 2% and 4% biochar as compared with the control in first month with average rainfall intensity (RI) of 11.7mm/hr. In the 2nd month (RI was 25.4mm/hr), the soil loss amounts were still the highest among all treatments, but the amounts and sediments in runoff have already decreased obviously than those in the 1st month with lower RI. Within 2 months, the treatment of PAM (50ppm) has the lowest soil loss amounts erosion and sediment contents in runoff among all treatments..

Key Words : biochar, polyacrylamide, compost, erosion potential.

〔1〕國立屏東科技大學水土保持學系碩士班研究生
Graduate student, Dept. of Soil and Water Conservation, National Pingtung University of Sci. and Tech., Pingtung 912, Taiwan
〔2〕國立屏東科技大學水土保持學系副教授（* 通訊作者 E-mail: shjien@mail.npust.edu.tw）
Associate Professor, Dept. of Soil and Water Conservation, National Pingtung University of Sci. and Tech., Pingtung 912, Taiwan