



Development of new peat based growing media by addition of pruning waste and biochars

Aurora Nieto (1), Gabriel Gascó (1), Jorge Paz-Ferreiro (2), César Plaza (3), José Manuel Fernández (3), and Ana Méndez (4)

(1) Departamento de Producción Agraria, E.T.S.I. Agrónomos, Universidad Politécnica de Madrid, Madrid, Spain (gabriel.gasco@upm.es), (2) School of Civil, Environmental and Chemical Engineering, RMIT University, Melbourne Australia (jorge.paz-ferreiro@rmit.edu.au), (3) Instituto de Ciencias Agrarias, Consejo Superior de Investigaciones Científicas, Madrid, Spain (cesar.plaza@csic.es), (4) Departamento de Ingeniería Geológica y Minera, ETSI de Minas y Energía, Universidad Politécnica de Madrid, Madrid, Spain (anamaria.mendez@upm.es)

In the last years, several researches have been performed to find high quality and low cost substrates from different organic wastes in order to decrease peat consumption since the indiscriminate exploitation of peat lands is exhausting this non-renewable useful resource and destroying endangered wetland ecosystems worldwide. The use of organic wastes as soil amendments or possible peat substitute could be improved by pyrolysis treatment, leading to biochar, a carbon-rich material that has attached important attention. Our research group has been worked in the formulation of new based-growing media by peat substitution in 50 and 75 vol% of pruning waste (PW), commercial charcoal (CC), biochar from PW at 300°C (B300) and 500°C (B500). Growing media show adequate physicochemical and hydrophysical properties. Experiments performed with lettuce germination show that PW addition in a 75vol% reduces germination index probably due to their high content on phenolic compounds. Lettuce growing experiments were performed during 5 weeks and show that addition of PW and CC to peat decreases biomass production whereas; B300 and specially, B500 addition significantly increases the lettuce biomass.