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Co-Pyrolysis of Olive Pomace with Plastic Wastes and Characterization of Pyrolysis Products

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Abstract : Waste polyethylene (PE) is classified as waste low density polyethylene (LDPE) and waste high density polyethylene (HDPE) according to their densities. Pyrolysis of plastic waste may have an important role in dealing with the enormous amounts of plastic waste produced all over the world, by decreasing their negative impact on the environment. This waste may be converted into economically valuable hydrocarbons, which can be used both as fuels and as feed stock in the petrochemical industry. End product yields and properties depend on the plastic waste composition. Pyrolytic biochar is one of the most important products of waste plastics pyrolysis. In this study, HDPE and LDPE plastic wastes were co-pyrolyzed together with waste olive pomace. Pyrolysis runs were performed at temperature 700°C with heating rates of 5°C/min. Higher pyrolysis oil and gas yields were observed by the using waste olive pomace. The biochar yields of HDPE- olive pomace and LDPEolive pomace were 6.37% and 7.26% respectively for 50% olive pomace doses. The calorific value of HDPE-olive pomace and LDPE-olive pomace of pyrolysis oil were 8350 and 8495 kCal.

Keywords : biochar, co-pyrolysis, waste plastic, waste olive pomace
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