

POTENTIAL VALUE OF PYROLYSIS OIL DERIVED FROM SHELLFISH PROCESSING BY-PRODUCT

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Key Words: pyrolysis, marine processing by-products, bio-oil

Marine processing by-products of shellfish can make-up 30-70 wt% of the landed harvest depending on species and extent of processing. This represents not only a massive storage and disposal cost for the processor but also a loss of value-added products. Snow crab and shrimp are key shellfish industry on the Northeastern coast of North America, however costs associated with treatment and disposal of the wastes (shells) challenges the overall sustainability. Thermochemical processing of the shell waste is one option to both produce a high value biochar and bio-oil. In this presentation we will present the yields and properties (e.g. water content, pH, composition, HHV, major functional groups, etc) of crab bio-oil from slow and fast pyrolysis. The bio-oil is of particular interest as the yield (45-55wt%) and water content (55-70wt%) is not a strong function of the type of pyrolysis (slow vs fast). Crab bio-oil is much higher in organic nitrogen and water content relative to lignocellulose biomass, limiting its use as a fuel. However, identified compounds in the oil indicate the bio-oil or compounds in liquid have applications as fertilizers, antimicrobials, and algae growth medium. This work will summarize work to date in bio-oil from crab pyrolysis, preliminary work in shrimp by-product pyrolysis and challenges ahead.

