**Pyrolysis of Grass Species in North America**

Several types of grasses belonging to the Poaceae family can be grown as bioenergy crops in the Midwest regions of the U.S. due to its climate, soil fertility, and water availability. However, in addition to taking into consideration these agronomic and land-based factors, selecting bioenergy crops also depends on the choice of biomass conversion technology, as certain technologies result in greater yields for specific types of biomass. Researchers in the DOE’s Great Lakes Bioenergy Research Center analyzed eight North-American native grass species to understand the effects of feedstock compositional variability on fast pyrolysis and associated products. The grasses species studied were: big bluestem, coastal panicgrass, deertongue, indiangrass, Miscanthus, prairie sandreed, sideoats grama, and switchgrass. The composition of each grass species was analyzed and Principal Component Analysis (PCA) identified significant variability in the pyrolysis products, however, no connection to the taxonomic tribe (Andropogoneae or Paniceae tribes, to which all grasses in this study belong) could be made from this study. To further understand the differences on the PCA plots, we used biomass composition and thermal and pyrolysis treatment properties data to relate composition and property data to the six chemical compounds most responsible for variability after plant tissue pyrolysis. Results from this study suggest that panicgrass might be better suited to bioenergy production via pyrolysis, whereas sideoats grama and deertongue may be better suited to fermentation-based processes.

**References:** Kelkar, S., Li, Z., Bovee, J., Thelen, K.D., Kriegel, R.M., Saffron, C.M. “Pyrolysis of North-American grass species: Effect of feedstock composition and taxonomy on pyrolysis products”. Biomass and Bionenergy (2015). http://dx.doi.org/10.1016/j.biombioe.2014.03.032

**Contact**: Dr. N. Kent Peters, SC-23.2, (301) 903-5549