

Jikai Zhao

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Education

Ph.D.	Kansas State University , Biological and Agricultural Engineering	2022
M.S.	Henan University of Technology , Food Science and Engineering	2017
B.S.	Henan University of Technology , Food Science and Engineering	2014

Professional Experience

Assistant Professor	The University of Texas Rio Grande Valley , Sustainable Food, Agricultural, and Environmental Systems	01/2023–present
Postdoc Associate	University of Wisconsin–Madison , Chemical and Biological Engineering, Advisor: George W. Huber	05/2022–12/2022
Graduate Assistant	Kansas State University , Biological and Agricultural Engineering Advisor: Donghai Wang	05/2019–05/2022
Graduate Assistant	Kansas State University , Grain Science and Industry, Advisor: Kaliramesh Siliveru	01/2019–05/2019
Graduate Assistant	Henan University of Technology , Food Science and Engineering, Advisor: Fengcheng Wang	09/2014–07/2017

Research Publications (*Corresponding author, †Co-first author)

• Book Chapters

- [2] **Zhao, J.,*** Wang, D., Pidlisnyuk, V., & Erickson, L.E. (2021). Miscanthus biomass for alternative energy production. *Phytotechnology with Biomass Production*, 177–199. CRC Press.
- [1] Pidlisnyuk, V., Erickson, L.E., Wang, D., **Zhao, J.**, Stefanovska, T., & Schlup, J.R. (2021). Miscanthus as Raw Materials for Bio-based Products. *Phytotechnology with Biomass Production*, 201–215. CRC Press.

• Peer-Reviewed Papers

- [38] Fu, Q., **Zhao, J.**, Rong, S., Han, Y., Liu, F., Chu, Q., ... & Chen, S. (2023). Research advances in plant protein-based products: protein sources, processing technology, and food applications. *Journal of Agricultural and Food Chemistry*, 71 (42), 15429-15444.
- [37] Zou, R., Wang, C., Qian, M., Lei, R., Zhao, Y., Zhang, Q., Huo, E., Kong, X., Lin, X., Wang, L., Zhang, X., Gluth, A., Harahap, B., Wang, Y., Dai, L., **Zhao, J.**, Ruan, R., Lei, H.* (2023). Catalytic fast co-pyrolysis of Douglas Fir and low-density polyethylene with nanocellulose-derived carbon catalyst for enhancing selectivity of hydrogen in syngas and mono-aromatic hydrocarbon in bio-oil products. *Chemical Engineering Journal*, 145640,
- [36] Rivera, J. L., **Zhao, J.**, Owonikoko, A., & Siliveru, K.* (2023). Significance of storage conditions on the flow properties of wheat flours. *Journal of Food Measurement and Characterization*, 1-11.
- [35] Yang, Y., **Zhao, J.**, Zhang, M., & Wang, D. (2023). Utilizing hydrolysis residue from bioethanol production as an additive for solid fuel pellets. *Fuel*, 348(15), 128582.
- [34] **Zhao, J.**,* Feng, D., & Lee, J. (2023). Life Cycle Assessment of calcium oxide pretreatment of corn stover with carbon dioxide neutralization for ethanol production. *Bioresource Technology*, 379, 129042.
- [33] **Zhao, J.**,* Wang, Z., Jin, Q., Feng D., & Lee, J.* (2023). Galactose to tagatose: Recent advances in non-enzymatic isomerization. *Journal of Agricultural and Food Chemistry*. 71 (10), 4228–4234.
- [32] **Zhao, J.**,* Lee, J., & Wang, D.* (2023). A critical review on water overconsumption in lignocellulosic biomass pretreatment for ethanol production through enzymic hydrolysis and fermentation. *Energy & Fuels*. 37 (4), 2667–2680.
- [31] **Zhao, J.**,* Yang, Y., Lee, J., Zhang, M., Roozeboom, K., & Wang, D.* (2022). Experimental and techno-economic assessment of monosaccharide and furan production under high biomass loading without solid- liquid separation. *ACS Sustainable Chemistry & Engineering*. 10(5), 1972–1982.

- [30] **Zhao, J.**,* Yang, Y., Lee, J., & Wang, D.* (2022). Technoeconomic analysis of ethanol production from corn stover without solid-liquid separation and detoxification. *ACS Sustainable Chemistry & Engineering*, 10 (30), 10077–10083.
- [29] **Zhao, J.**,* Lee, J., & Wang, D. (2022). An integrated deep eutectic solvent-ionic liquid-metal catalyst system for lignin and 5-hydroxymethylfurfural production from lignocellulosic biomass: Technoeconomic analysis. *Bioresource Technology*, 356, 127277.
- [28] Lindsay, M., Molitor, M., Goculdas, T., **Zhao, J.**, Featherman, J., Li, M., Miller, J., Avraamidou, S., Rankin, S. A., Dumesic, J. A., Huber, G. W.* (2022). Production of glucose-galactose syrup and milk minerals from Greek yogurt acid whey. *Green Chemistry*, 24, 8538–8551.
- [27] Weiss, T., **Zhao, J.**, Hu, R., Liu, M., Li, Y., Zheng, Y., & Wang, D.* (2022). Production of distilled spirits using grain sorghum through liquid fermentation. *Journal of Agriculture and Food Research*, 9, 100314.
- [26] **Zhao, J.**, Wilkins, M., and Wang, D.* (2022). A review on strategies to reduce ionic liquid pretreatment costs for biofuel production. *Bioresource Technology*, 364, 128045.
- [25] Pradyawong, S., Brown, N.H., **Zhao, J.**, Qi, G., Zheng, Y., Sun, X., & Wang, D.* (2022). Improved Soy Protein Adhesives by Lignin and Polyamide-epichlorohydrin: Adhesion Performance and Properties. *Journal of Polymers and the Environment*, e53086.
- [24] **Zhao, J.**, Yang, Y., Zhang, M., Rice, C., & Wang, D.* (2022). Elucidating thermochemical pretreatment effectiveness of different particle-size switchgrass for cellulosic ethanol production. *Biomass & Bioenergy*, 164, 106561.
- [23] **Zhao, J.**, Wang, W., Li, Y., Sun, X., & Wang, D.* (2022). Nutritional and chemical composition of industrial hemp seeds. *Industrial Hemp*. Elsevier.
- [22] **Zhao, J.**, Weiss, T., Du, Z., Hong, S., Bean, S., Li, Y., & Wang, D.* (2021). Comparative evaluation of physicochemical and fermentative responses of three sorghum varieties from dryland and irrigated land and properties of proteins from distillers' grains. *Journal of Cereal Science*, 104, 103432.
- [21] Yang, Y., **Zhao, J.**, Zhang, M., & Wang, D.* (2021). Effects of particle size on biomass pretreatment and hydrolysis performances in bioethanol conversion. *Biomass Conversion and Biorefinery*.
- [20] **Zhao, J.**, Lee, J., Weiss, T., & Wang, D.* (2021). Technoeconomic analysis of multiple-stream ethanol and lignin production from lignocellulosic biomass: Insights into the chemical selection and process integration. *ACS Sustainable Chemistry & Engineering*, 9(40), 13640–13652.
- [19] **Zhao, J.**, Griffin, J., Roozeboom, K., Lee, J., & Wang, D.* (2021). Lignin, sugar, and furan production of industrial hemp biomass via an integrated process. *Industrial Crops and Products*, 172, 114049.
- [18] **Zhao, J.**, Yang, Y., Zhang, M., & Wang, D.* (2021). Minimizing water consumption for sugar and lignin recovery via the integration of acid and alkali pretreated biomass and their mixed filtrate without post-washing. *Bioresource Technology*, 337, 125389.
- [17] **Zhao, J.**, Yang, Y., Zhang, M., & Wang, D.* (2021). Effects of post-washing on pretreated biomass and hydrolysis of the mixture of acetic acid and sodium hydroxide pretreated biomass and their mixed filtrate. *Bioresource Technology*, 339, 125605.
- [16] Li, Q., Qi, G., Liu, X., Bai, J., **Zhao, J.**, Tang, G., Zhang, Y.S., Chen-Tsai, R., Zhang, M., Wang, D., Zhang, Y., & Sun, X.* (2021). Universal peptide hydrogel for scalable physiological formation and bioprinting of 3D spheroids from human induced pluripotent stem cells. *Advanced Functional Materials*, 31(41), 2104046.
- [15] **Zhao, J.**, Wu, X. and Wang, D.* (2021). Potential of wheat milling byproducts to produce fermentable sugars via mild ethanol-alkaline pretreatment. *ACS Sustainable Chemistry & Engineering*, 9(10), 3626–3632.
- [14] **Zhao, J.**, Wang, D., & Li, Y.* (2021). Proteins in dried distillers' grains with solubles: A review of animal feed value and potential non-food uses. *Journal of the American Oil Chemists' Society*, 98, 957–968.
- [13] Xu, Y., **Zhao, J.**, Hu, R., Wang, W., Griffin, J., Li, Y., Sun, X.S. & Wang, D.* (2021). Effect of genotype on the physicochemical, nutritional, and antioxidant properties of hempseed. *Journal of Agriculture and Food Research*, 3, 100119.
- [12] **Zhao, J.**, Jin, S., Zhang, Q., Wang, F., Lee, J., & Wang, D.* (2021). Characterization of four Chinese bread wheat varieties over five years. *ACS Food Science & Technology*, 1(5), 770–777.

- [11] Xu, Y., Li, J., **Zhao, J.**, Wang, W., Griffin, J., Li, Y., Bean, S., Tilley, M. & Wang, D.* (2021). Hempseed as a nutritious and healthy human food or animal feed source: a review. *International Journal of Food Science & Technology*, 56(2), 530–543.
- [10] **Zhao, J.**, Xu, Y., Wang, W., Griffin, J., & Wang, D.* (2020). Conversion of liquid hot water, acid and alkali pretreated industrial hemp biomasses to bioethanol. *Bioresource Technology*, 309, 123383.
- [9] **Zhao, J.**, Xu, Y., Wang, W., Griffin, J., Roozeboom, K., & Wang, D.* (2020). Bioconversion of industrial hemp biomass for bioethanol production: A review. *Fuel*, 281, 118725.
- [8] **Zhao, J.**, Xu, Y., Zhang, M., & Wang, D.* (2020). Integrating bran starch hydrolysates with alkaline pretreated soft wheat bran to boost sugar concentration. *Bioresource Technology*, 302, 122826.
- [7] **Zhao, J.**, Li, J., Qi, G., Sun, X.S., & Wang, D.* (2020). Two nonnegligible factors influencing lignocellulosic biomass valorization: filtration method after pretreatment and solid loading during enzymatic hydrolysis. *Energy & Fuels*, 35(2), 1546–1556.
- [6] **Zhao, J.**, Xu, Y., Wang, W., Griffin, J., & Wang, D.* (2020). High ethanol concentration (77 g/L) of industrial hemp biomass achieved through optimizing the relationship between ethanol yield/concentration and solid loading. *ACS Omega*, 5(34), 21913–21921.
- [5] **Zhao, J.**, Liu, X., Bai, X., & Wang, F.* (2019). Production of biscuits by substitution with different ratios of yellow pea flour. *Grain & Oil Science and Technology*, 2(4), 91–96.
- [4] **Zhao, J.**, Liu, X., & Wang, F.* (2019). DON reduction of wheat grain without compromising the lab-scale milling properties of flour. *Grain & Oil Science and Technology*, 2(3), 62–66.
- [3] **Zhao, J.**, Wang, M., & Wang, F.* (2017). Effect of bran recombining process of short milling on qualities of whole wheat flour. *Journal of Henan University of Technology*, 38(6), 48–55.
- [2] **Zhao, J.**, Wang, F.,* Fu, W., & Wang, M. (2017). Effect of different debranning degrees on the qualities of whole wheat flour and Chinese steamed bread. *Food Science*, 2017, 38(21), 158–164.
- [1] **Zhao, J.**, Wang, F.,* Fu, W., & Wang, M. (2017). Effect of different particle size on the qualities of whole wheat flour and steamed bread. *Journal of Henan University of Technology*, 38(1), 37–44.

Conference Presentations

- [7]. Cruz, E., & **Zhao, J.** Production of Tagatose from Galactose with CaO at Room Temperature. *College of Sciences Annual Research Conference*, Edinburg, Texas, April 26th, 2024.
- [6]. **Zhao, J.**, & Wang, D. Minimizing water and chemical consumption during ethanol production from biomass. *Kyungpook National University*, Daegu, South Korea, June 7th, 2023 (invited talk).
- [5]. **Zhao, J.**, & Huber, G. Catalytic hydrolysis of acid whey microfiltration permeate in the continuous-flow and batch reactors. *Second Annual Conference for Interdisciplinary Research*, Edinburg, TX, March 30th-31st, 2023.
- [4]. **Zhao, J.**, & Wang, D. Understanding the relationship between ethanol yield/concentration and solid loading to boost ethanol concentration of industrial hemp biomass, *2021 ASABE AIM*, Online, United States.
- [3]. Martin, R., **Zhao, J.**, Siliveru, K., & Alavi, S. Optimization of de-hulling and milling of chickpeas using roller mills, *2019 AACC Annual Conference*, Denver, Colorado, United States.
- [2]. Rivera, J., **Zhao, J.**, Owonikoko, A., & Siliveru, K. Significance of environmental and particle conditions on the flow properties of hard and soft wheat flours, *2019 AACC Annual Conference*, Denver, Colorado.
- [1]. **Zhao, J.**, & Wang, F., Effect of different debranning degrees on the qualities of whole wheat flour and Chinese steamed bread, *2017 1st ICC Asia-Pacific Grains Conferences*, Xiamen, China.

Honors and Awards

- Graduate Student of The Month of the Department of Biological and Agricultural Engineering 2021
- Graduate Student of The Year of the Department of Biological and Agricultural Engineering 2021
- Robert I-Jen and Sophia Shui-Kan Jung Graduate Scholarship of Carl R. Ice College of Engineering 2021
- Robert I-Jen and Sophia Shui-Kan Jung Graduate Scholarship of Carl R. Ice College of Engineering 2020
- Outstanding Master Dissertation Award of Henan University of Technology 2017
- Outstanding Master Scholarship of Henan University of Technology 2015

Professional Service and Activities

- **Manuscript Reviewer:** *Resources, Conservation and Recycling* (1); *Industrial Crops & Products* (1); *Bioresource Technology* (2); *Journal of Cleaner Production* (1); *American Society of Agricultural and Biological Engineers* (1); *Journal of Cereal Science* (1); *Clean Technologies and Environmental Policy* (3); *Journal of Biotechnology and Bioprocessing* (1); *Biomass Conversion and Biorefinery* (2); *International Journal of Ambient Energy* (1); *Scientific Reports* (2); *Journal of Natural Fibers* (1); *Processes* (1); *Biotechnology for Biofuels and Bioproducts* (1); *BMC Biotechnology* (1); *Microbial Cell Factory* (2)
- **Member:** *American Institute of Chemical Engineers*; *American Society of Agricultural and Biological Engineers*; *International Association of Operative Millers*; National Technology Alliance
- **Member of the Early Career Reviewer Board:**
 - 1) *Biotechnology for Environment* <https://biotechforenvironment.biomedcentral.com/>
 - 2) *Blue Technology* <https://bluebiotechnology.biomedcentral.com/>
 - 3) *Biotechnology and Sustainable Materials* <https://biotech sustainablematerials.biomedcentral.com/>

Mentoring and Teaching

- **Mentoring:**

Ethan Cruz (undergraduate research assistant), research on catalyzing galactose to tagatose.
Luis Castro (undergraduate research assistant), research on upgrading biomass to biofuels.
- **Teaching:**
 - 1) BIOL 1406 Labs
 - 2) ENVR 1402 Introduction to Environmental Sciences (Lab and Lecture)
 - 3) EMSS 6350 Novel Ecosystems
 - 4) EMSS 6311 Service Learning Project I and II
 - 5) Special topics: Technoeconomic Analysis; Life Cycle Assessment