

Curriculum vitae

Name	Demi Tristan Djajadi
Affiliation	University of Copenhagen, Department of Geosciences and Natural Resource Management, Rolighedsvej 23, DK-1958 Frederiksberg C
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Scientific focus area

- biopolymer chemistry (esp. lignocellulosic biomass)
- intermolecular surface interactions of biopolymers (esp. proteins)
- remediation of polluted water, especially micro- and nanoplastic
- valorization of bio-based industrial sidestreams (fuels, chemicals, materials)

Employment and research history

- 2021-present – Postdoc, Department of Geosciences and Natural Resource Management (IGN), University of Copenhagen (KU), Denmark
- 2019-2020 – Postdoc, Department of Plant and Environmental Sciences (PLEN), KU, Denmark
- 2018 (8 months) – Specialist, Department of Innovation and Research, Ørsted (Green Waste Solutions – Renaissance technology), Denmark
- 2017 (3 months) – Visiting research scientist, Biomass Processing Technology Team, Technical Research Center of Finland (VTT), Finland
- 2015-2018 – PhD student, Department of Chemical and Biochemical Engineering, Technical University of Denmark (DTU), Denmark

Education

- 12.11.2018 – PhD, Technical University of Denmark (DTU), Denmark
Thesis: “Biomass properties and enzyme-lignin interactions in the enzymatic cellulose degradation of hydrothermally pretreated lignocellulosic grass feedstocks”
- 22.12.2014 – MSc, Molecular Biotechnology, University of Helsinki, Finland
- 14.04.2012 – BSc, Biology, Bandung Institute of Technology, Indonesia

Bibliometric information

- 10 peer-reviewed international publications, h-index: 8, i10-index: 8, citations: 346 (Google Scholar – 01.09.2022)
- 4 publications with first authorship

Supervision and teaching

- Currently co-supervising a PhD student at IGN, KU.
- Co-supervised two visiting postdoctoral researchers at IGN, KU.
- Co-supervised two Erasmus master’s thesis students at DTU.
- Taught courses on Advanced Enzyme Technology and Biorefinery at DTU and KU.

Grants

- 2021 – VILLUM Experiment grant: “Cleaning waste with waste: using bio-based industrial sidestreams to remove micro- and nanoplastic from water bodies”, 1.9 million DKK.

Other scientific qualifications

- I regularly serve as peer reviewer for scientific journals, ca. 5 manuscripts/year, among others *Applied Sciences* (IF: 2.838), *Processes* (IF: 3.352), *Journal of the Science of Food and Agriculture* (IF: 4.125), *Catalysts* (IF: 4.501), *Cellulose* (IF: 6.123), *Molecules* (IF: 4.927).

Experimental and research methods

- Synthesis and characterization of bio-based nanoparticles; using among others dynamic light scattering (DLS) instrument for the characterization.
- Adsorption and binding kinetic experiments of proteins on solid surface using colorimetric protein assay and radioactive labeling.
- Protein-polyelectrolyte interaction (e.g. precipitation).
- Enzyme activity assay and kinetics.
- Thermochemical pretreatment (e.g. hydrothermal and dilute acid), composition analysis and enzymatic hydrolysis of lignocellulosic biomass.
- Characterization of biological polymers using Fourier-transform infrared (FTIR) and Raman micro-spectroscopy, nuclear magnetic resonance (NMR) spectroscopy, gel permeation chromatography (GPC), high pressure liquid chromatography (HPLC).
- Design of experiment (DoE) and statistical analysis.

Languages

- English (full professional proficiency)
- Danish (professional proficiency)
- Finnish (limited professional proficiency)
- Indonesian (native or bilingual proficiency)

Publication list

Peer-reviewed journal articles

1. Brenelli LB, Bhatia R, Djajadi DT, Thygesen LG, Rabelo SC, Leak DJ, Franco TT, Gallagher JA: Xylo-oligosaccharides, fermentable sugars, and bioenergy production from sugarcane straw using steam explosion pretreatment at pilot-scale. *Bioresource Technology* 357: 127093 (2022). Impact factor: 11.889.
2. Djajadi DT, Brenelli LB, Franco TT, Thygesen LG, Jørgensen H: Lignosulfonate properties and reaction conditions enhance precipitation and affect ensuing quality of proteins from green biomass juice for monogastric animal feed.* *Animal Feed Science and Technology* 285: 115212 (2022). Impact factor: 3.313.
3. Holck J, Djajadi DT, Brask J, Pilgaard B, Krogh KBRM, Meyer AS, Lange L, Wilkens C: Novel xylanolytic triple domain enzyme targeted at feruloylated arabinoxylan degradation. *Enzyme and Microbial Technology* 129: 10935 (2019). Impact factor: 3.705.
4. Djajadi DT[†], Pihlajaniemi V[†], Rahikainen J, Kruus K, Meyer AS: Cellulases adsorb reversibly on biomass lignin.* *Biotechnology and Bioengineering* 115(12): 2869-2880 (2018). Impact factor: 4.395. [†]Shared first authorship.
5. Djajadi DT, Jensen MM, Oliveira M, Jensen A, Thygesen LG, Pinelo M, Glasius M, Jørgensen H, Meyer AS: Lignin from hydrothermally pretreated grass biomass retards enzymatic cellulose degradation by acting as a physical barrier rather than by inducing nonproductive adsorption of enzymes.* *Biotechnology for Biofuels* 11: 85 (2018). Impact factor: 7.670.
6. Jensen MM, Djajadi DT, Torri C, Rasmussen HB, Madsen RB, Venturini E, Vassura I, Becker J, Iversen BB, Meyer AS, Jørgensen H, Fabbri D, Glasius M: Hydrothermal liquefaction of enzymatic hydrolysis lignin: Biomass pretreatment severity affects lignin valorization. *ACS Sustainable Chemistry and Engineering* 6 (5): 5940-5949 (2018). Impact factor: 9.224.
7. Djajadi DT, Hansen AR, Jensen A, Thygesen LG, Pinelo M, Meyer AS, Jørgensen H: Surface properties correlate to the digestibility of hydrothermally pretreated lignocellulosic Poaceae biomass feedstocks.* *Biotechnology for Biofuels* 10: 49 (2017). Impact factor: 7.670.
8. Suhandono S, Setiadi H, Kristianti T, Wedaringtyas AW, Djajadi DT, Aryantha INP: Diversity of culturable bacterial in various parts of Luwak's (*Paradoxurus hermaphroditus javanica*) gastrointestinal tract. *Microbiology Indonesia* 10(2): 65-70 (2016). Impact factor: N/A.
9. Pakarinen A, Haven MØ, Djajadi DT, Várnai A, Puranen T, Viikari L: Cellulases without carbohydrate-binding modules in high consistency ethanol production process. *Biotechnology for Biofuels* 7: 27 (2014). Impact factor: 7.670.

Peer-reviewed book chapter

10. Várnai A, Mäkelä M, Djajadi DT, Rahikainen J, Hatakka A, Viikari L: Carbohydrate-binding modules of fungal cellulases: Occurrence in nature, function, and relevance in industrial biomass conversion. *Advances in Applied Microbiology* 88: 103-165 (2014). Impact factor: 5.086.