

**Summary Specification of Scientific Accomplishments of a Thesis Supervisor Candidate**  
maximum 2 pages - it should be a synthesis of the most important elements of accomplishments

Name and surname, degree, scientific title: D.Sc. Andrzej Antczak, associate professor	
Scientific discipline/s	Forestry sciences
Professional development (scientific degrees and titles) chronologically	<p>Master engineer of chemistry (2005, Faculty of Chemistry Warsaw University of Technology, chemical technology course, speciality: technology of high-energetic materials and safety of chemical processes);</p> <p>Doctor engineer of forestry sciences (2010, Faculty of Wood Technology Warsaw University of Life Sciences);</p> <p>Doctor engineer (with habilitation) of forestry sciences (2019, Faculty of Wood Technology Warsaw University of Life Sciences);</p> <p>Associate professor (2022, Department of Wood Science and Wood Preservation, Institute of Wood Sciences and Furniture Warsaw University of Life Sciences).</p>
Most important publications/patents from the last 3 years (max. 10)	<p>Krutul D., Szadkowski J., Výbohová E., Kučerová V., Čabalová I., Antczak A., Szadkowska D., Drożdżek M., Zawadzki J., 2024: „Effect of steam explosion pretreatment on chosen saccharides yield and cellulose structure from fast-growing poplar (<i>Populus deltoides</i> × <i>maximowiczii</i>) wood”. Wood Science and Technology, <a href="https://doi.org/10.1007/s00226-024-01532-7">https://doi.org/10.1007/s00226-024-01532-7</a></p> <p>Antczak A., Dąbkowska-Suszał K., Walkowiak M., Witczak M., Szadkowski J., Cichy W., Radomski A., Zawadzki J., 2023: „The influence of selected physico-chemical pretreatment methods on chemical composition and enzymatic hydrolysis yield of fast-growing poplar wood and corn stover”. <i>Drewno</i>, 66(211), 1-13</p> <p>Bernacki M.J., Mielecki J., Antczak A., Drożdżek M., Witoń D., Dąbrowska-Bronk J., Gawroński P., Burdiak P., Marchwicka M., Rusaczonek A., Dąbkowska-Suszał K., Strobel W.R., Mellerowicz E.J., Zawadzki J., Szechyńska-Hebda M., Karpiński S., 2023: „Biotechnological Potential of the Stress Response and Plant Cell Death Regulators Proteins in the Biofuel Industry”. <i>Cells</i>, 12, 2018</p> <p>Antczak A., Szadkowski J., Szadkowska D., Zawadzki J., 2022: „Assessment of the effectiveness of liquid hot water and steam explosion pretreatments of fast-growing poplar (<i>Populus trichocarpa</i>) wood”. <i>Wood Science and Technology</i>, 56, 87-109.</p> <p>Gliszczynski T., Antczak A., 2022: „The study of selected properties of pine wood (<i>Pinus sylvestris</i> L.) subjected to acetylation”. <i>Annals of Warsaw University of Life Sciences, Forestry and Wood Technology</i>, 117, 5-13.</p>
Experience in work with PhD students (defended dissertations,	<p>Akus-Szylberg F. "The study of the impact of selected pre-treatment methods on the chemical composition and efficiency</p>

initiated dissertation procedures), chronologically	<p>of enzymatic hydrolysis of poplar wood and corn stover", Institute of Wood Sciences and Furniture, Warsaw University of Life Sciences, defended doctoral dissertation on April 28, 2022.</p> <p>Marchwicka M. "The influence of selected methods of poplar wood processing on the efficiency of enzymatic hydrolysis", Institute of Wood Sciences and Furniture, Warsaw University of Life Sciences, defended doctoral dissertation on November 27, 2020.</p>
Project/grant accomplishments (from the last 10 years)	<p>Research project financed by the National Science Centre "Spectroscopic methods for rapid phenotyping of trees reflecting their ecological resilience" DendroSpec, UMO-2021/43/I/NZ9/02809 – researcher – 2022/2025</p> <p>Research project of the National Centre for Research and Development "Technologies of using agricultural by-products" PASZA PRO, POIR.01.01.01-00-0224/19-00 – researcher – 2019/2023</p> <p>Research project of the National Centre for Research and Development "Intelligent farming and cultivation systems for wheat, maize and poplars for optimized production, biomass, biofuels and modified wood" BIOSTRATEG2/298241/10/NCBR/2016 – researcher – 2016/2019</p> <p>Research project of the National Centre for Research and Development "The use of poplar lines with increased potential of biomass growth and improved chemical composition of wood in technology of paper production and biofuels" PBS1/A8/16/2013 – researcher – 2013/2016</p> <p>Research project of the National Centre for Research and Development "A program to improve the level of the didactic approach to the question of how to obtain raw plant materials for the purposes of energy production in the context of the Europe 2020 Strategy objectives" – researcher – 2014/2015</p>
Theme scope - research problem - for the solving of which the PhD student is sought	<p><u>Topics to choose from:</u></p> <ol style="list-style-type: none"> <li>1. Study of pretreatment, hydrolysis and fermentation processes towards the production of bioethanol from lignocellulosic biomass.</li> <li>2. Study of the impact of selected pretreatment methods on the chemical composition of lignocellulosic biomass and the physico-chemical properties of the obtained lignin.</li> <li>3. Study of the impact of selected chemical modification methods on the physico-chemical properties of wood (density, colour, hardness, dimensional stability, chemical composition).</li> </ol>
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