

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹
Kód VTC/Code of the
research/artistic/other output (RAOO):¹

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Ondrejovič Chmelová	
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniela	
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	doc. RNDr. PhD./ assoc. prof. RNDr. PhD.	
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/22796	
OCA5. Oblasť posudzovania / Area of assessment ⁴	4. Biotechnológie/ 4. Biotechnology	
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output	
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2020	
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	ID 188166	
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://app.crepc.sk/?fn=detailBiblioForm&sid=00E02E66D372647A3330400AB7	
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in CRPA or CRAA	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷	
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs	Ultrasonic-assisted extraction of polyphenols and antioxidants from <i>Picea abies</i> bark / Chmelová, Daniela; Škulcová, Dominika; Legerská, Barbora; Horník, Miroslav; Ondrejovič, Miroslav. Journal of Biotechnology. Elsevier. 314, 2020, 25-33.
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://www.sciencedirect.com/science/article/pii/S0168165620300912</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[40 %]</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>Spruce bark represents a reservoir of bioactive compounds. The aim of this study was to investigate the effect of independent variables (temperature, liquid to solid ratio, time and methanol content) and their interaction within the extraction process by the response surface methodology (RSM). The effect of conventional (solvent extraction; SE) and modern (ultrasound-assisted extraction; UAE) methods for the extraction of antioxidants (antioxidant capacity; AC) and polyphenols (total polyphenol content; TPC) was compared. Maximum yields of AC and TPC by SE and UAE were obtained at modified optimal conditions of 63 °C, methanol content of 53 % (v/v) and 38 mL of extraction solvent per gram of dry material. Two-step extraction process consisting of the fast washing and slow diffusion steps was suitable described by Peleg and Patricelli mathematic models. The HPLC fingerprints of both extracts did not show significant differences while the content of phenolic compounds extracted by UAE was 1.1- to 7.1-times higher than that obtained by SE, quantified by HPLC.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output Rozsah do 200 slov / Range up to 200 words</p>	<p>Wang, R., Wang, J., Wang, Z., Pan, J., Sun, S., Ma, C., Tang, X., Lv, S., Zhai, S., Zhao, G. Extraction methods, structural characteristics, biological activities, and applications of the polysaccharides from <i>Gracilaria lemaneiformis</i>: A review (2025) International Journal of Biological Macromolecules, 293, art. no. 139316, .</p> <p>Yang, K., Han, T.-H., Liu, Y.-J., Zhang, J.-N., Zhou, P., Yu, X.-P. Application progress of ultrasound in the production and processing of traditional Chinese herbal medicines (2024) Ultrasonics Sonochemistry, 111, art. no. 107158, .</p> <p>Wen, Y., Sun, D., Li, J., Ostovan, A., Wang, X., Ma, J., You, J., Muhammad, T., Chen, L., Arabi, M. The metal- and covalent-organic frameworks-based molecularly imprinted polymer composites for sample pretreatment (2024) TrAC - Trends in Analytical Chemistry, 178, art. no. 117830, .</p> <p>Wang, J., Zhao, H., Xue, X., Han, Y., Wang, X., Sheng, Z. Application of ionic liquid ultrasound-assisted extraction (IL-UAE) of lycopene from guava (<i>Psidium guajava</i> L.) by response surface methodology and artificial neural network-genetic algorithm (2024) Ultrasonics Sonochemistry, 106, art. no. 106877, .</p> <p>Matejić, J.S., Dragičević, A.V., Jovanović, M.S., Žarković, L.D., Džamić, A.M., Hinić, S.S., Pavlović, D.R. Plant Products for Musculoskeletal, Respiratory, Circulatory, and Genitourinary Disorders in Eastern and South-Eastern Serbia – Folk Uses Comparison with Official Recommendations (2024) Records of Natural Products, 18 (1), pp. 1-52.</p>
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	<p>Využívania odpadových surovín na získanie produktov s pridanou hodnotou tvorí významnú časť spoločensko-hospodárskeho záujmu. Rozvoj tejto problematiky napomáha pri navrhovaní technológií vedúcich k zníženiu spotreby energie a surovín a produkcií nových výrobkov. Daný postup sa konkrétne týka využitia odpadovej lesnej biomasy s cieľom izolácie biologicky aktívnych látok. The use of waste raw materials to obtain value-added products is a significant part of the socio-economic interest. The development of this issue helps to design technologies leading to a reduction in the consumption of energy and raw materials and the production of new products. The procedure specifically concerns the use of waste forest biomass for the isolation of biologically active substances.</p>

OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process
Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak
Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English

Výstup je orientovaný do problematiky priemyselných biotechnológií, do využívania odpadových surovín ako zdroja biologicky aktívnych látok. Dopady sa prejavujú vo výučbe predmetov s biologickým a biotechnologickým obsahom.
The output is focused on the issues of industrial biotechnology, the use of waste materials as a source of biologically active substances. Impacts will be reflected in the teaching of subjects with biological and biotechnological content.

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹	
Kód VTC/Code of the research/artistic/other output (RAO): ¹	

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Ondrejovič Chmelová
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniela
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	doc. RNDr. PhD./ assoc. prof. RNDr. PhD.
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/22796
OCA5. Oblasť posudzovania / Area of assessment ⁴	4. Biotechnológie/ 4. Biotechnology
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2022
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	459567
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://app.crepč.sk/?fn=detailBiblioForm&sid=05ADA12617B190A888A4BBE908
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>
	<p>The production of laccases by white-rot fungi under solid-state fermentation conditions / Chmelová, Daniela; Legerská, Barbora; Kunstová, Jana; Ondrejovič, Miroslav; Miertuš, Stanislav. World Journal of Microbiology & Biotechnology, 38, 2 2022, 21, 1-20.</p> <p>Článok/article</p>

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://pubmed.ncbi.nlm.nih.gov/34989891/</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[35 %]</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>Laccases (E.C. 1.10.3.2) produced by white-rot fungi (WRF) can be widely used, but the high cost prevents their use in large-scale industrial processes. Finding a solution to the problem could involve laccase production by solid-state fermentation (SSF) simulating the natural growth conditions for WRF. SSF offers several advantages over conventional submerged fermentation (SmF), such as higher efficiency and productivity of the process and pollution reduction. The aim of this review is therefore to provide an overview of the current state of knowledge about the laccase production by WRF under SSF conditions. The focus is on variations in the up-stream process, fermentation and down-stream process and their impact on laccase activity. The variations of up-stream processing involve inoculum preparation, inoculation of the medium and formulation of the propagation and production media. According to the studies, the production process can be shortened to 5–7 days by the selection of a suitable combination of lignocellulosic material and laccase producer without the need for any additional components of the culture medium. Efficient laccase production was achieved by valorisation of wastes as agro-food, municipal wastes or waste generated from wood processing industries. This leads to a reduction of costs and an increase in competitiveness compared to other commonly used methods and/or procedures. There will be significant challenges and opportunities in the future, where SSF could become more efficient and bring the enzyme production to a higher level, especially in new biorefineries, bioreactors and biomolecular/genetic engineering.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<p>Salem, M.M., Mohamed, T.M., Shaban, A.M., Mahmoud, Y.A.G., Eid, M.A., El-Zawawy, N.A. Optimization, purification and characterization of laccase from a new endophytic <i>Trichoderma harzianum</i> AUMC14897 isolated from <i>Opuntia ficus-indica</i> and its applications in dye decolorization and wastewater treatment (2024) <i>Microbial Cell Factories</i>, 23 (1), art. no. 266, .</p> <p>Barua, R.C., Coniglio, R.O., Molina, M.A., Díaz, G.V., Fonseca, M.I. Fungi as biotechnological allies: Exploring contributions of edible and medicinal mushrooms (2024) <i>Journal of Food Science</i>, 89 (11), pp. 6888-6915.</p> <p>Andriani, A., Agustriana, E., Perwitasari, U., Wahyuwati, F.A., Hastuty, A., Ferdian, P.R., Trismilah High melanin degradation by laccase from a novel isolated white rot fungi <i>Trametes polyzona</i> 023 in the presence of phenolic compounds (2024) <i>Bioresource Technology Reports</i>, 27, art. no. 101923, .</p> <p>Mishra, B., Santra, H.K., Banerjee, D. Exploitation of Selected Fungal Endophytes of <i>Andrographis paniculata</i> (Burm. f.) Wall. ex Nees for the Production and Optimisation of Tannase and Screening for their Associated Hydrolysing Enzymes; Amylase, Protease, Lipase, and Laccase (2024) <i>Journal of Pure and Applied Microbiology</i>, 18 (1), pp. 555-567.</p> <p>Serbent, M.P., Magario, I., Saux, C. Immobilizing white-rot fungi laccase: Toward bio-derived supports as a circular economy approach in organochlorine removal (2024) <i>Biotechnology and Bioengineering</i>, 121 (2), pp. 434-455.</p>
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range</i></p>	<p>Enzýmy a na enzýmoch založené technológie tvoria významnú časť spoločensko-hospodárskeho záujmu a rozvoj tejto problematiky umožňuje napredovanie v rozvoji tzv. zelených technológií vedúcich k produkcii konvenčne využívaných a nových látok biologickou cestou, ktorá spravidla vedie k zníženiu spotreby energií a surovín</p>

<p><i>up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range</i> <i>up to 200 words in English</i></p>	<p>používaných na produkciu tovarov a služieb, ale aj k rozkladu polutantov prenikajúcich do životného prostredia antropogénnou činnosťou.</p> <p>Enzymes and enzyme-based technologies form a significant part of the socio-economic interest, and the development of this issue allows for progress in the development of so-called green technologies leading to the production of conventionally used and new substances in a biological way, which usually leads to a reduction in the consumption of energy and raw materials used to produce goods and services, but also to the decomposition of pollutants entering the environment by anthropogenic activity.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process</p> <p><i>Rozsah do 200 slov v slovenskom jazyku / Range</i> <i>up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range</i> <i>up to 200 words in English</i></p>	<p>Výstup je orientovaný do problematiky enzymológie, enzýmových technológií, ale i mikrobiológie. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým a biologickým obsahom.</p> <p>The output is oriented to the issues of enzymology, enzyme technologies, but also microbiology. Impacts will be reflected in the teaching of subjects with biotechnological and biological content.</p>

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹	
Kód VTC/Code of the research/artistic/other output (RAOO): ¹	

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Ondrejovič Chmelová
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniela
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	doc. RNDr. PhD./ assoc. prof. RNDr. PhD.
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/22796
OCA5. Oblasť posudzovania / Area of assessment ⁴	4. Biotechnológie/ 4. Biotechnology
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2022
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	512536
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://app.crepce.sk/?fn=detailBiblioForm&sid=A5213ECA03C20E558011CF8C0A
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>
	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://www.mdpi.com/2311-5637/8/9/451</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[50 %]</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>The accumulation of polyhydroxyalkanoates (PHAs) by microorganisms usually occurs in response to environmental stress conditions. Therefore, it is advantageous to choose two-step cultivation. The first phase is aimed at maximizing biomass production, and only in the second phase, after setting the suitable conditions, PHA production starts. The aim of this work was to optimize the composition of the minimal propagation medium used for biomass production of <i>Cupriavidus necator</i> DSM 545 using the response surface methodology (RSM). Based on the results from the search for optimization limits, the glucose concentration, the ammonium sulfate concentration and the phosphate buffer molarity were chosen as independent variables. The optimal values were found as follows: the glucose concentration 10.8 g/L; the ammonium sulfate concentration 0.95 g/L; and the phosphate buffer molarity 60.2 mmol/L. The predicted biomass concentration was 4.54 g/L, and the verified value was at 4.84 g/L. Although this work was primarily focused on determining the optimal composition of the propagation medium, we also evaluated the optimal composition of the production medium and found that the optimal glucose concentration was 6.7 g/L; the ammonium sulfate concentration 0.60 g/L; and the phosphate buffer molarity 20 mmol/L. The predicted PHB yield was 54.7% (w/w) of dry biomass, and the verified value was 49.1%.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<p>Ridella, F., Marcet, I., Rendueles, M., Díaz, M. Long-chain fatty acids as sole carbon source in polyhydroxyalkanoates production by <i>Cupriavidus necator</i> H16 (2025) <i>Bioresource Technology</i>, 417, art. no. 131846, .</p> <p>Garg, K., Sehgal, R., Sharma, D., Gupta, R. Polyhydroxyalkanoates as matrices for enzyme immobilization: In vivo and In vitro approaches (2024) <i>Process Biochemistry</i>, 147, pp. 530-542.</p> <p>Russo, G., Scocca, P., Gelosia, M., Fabbrizi, G., Giannoni, T., Urbani, S., Esposito, S., Nicolini, A. Poly(3-hydroxybutyrate) production for food packaging from biomass derived carbohydrates by <i>Cupriavidus necator</i> DSM 545 (2024) <i>Enzyme and Microbial Technology</i>, 181, art. no. 110516, .</p> <p>Thamarai, P., Vickram, A.S., Saravanan, A., Deivayanai, V.C., Evangeline, S. Recent advancements in biosynthesis, industrial production, and environmental applications of polyhydroxyalkanoates (PHAs): A review (2024) <i>Bioresource Technology Reports</i>, 27, art. no. 101957, .</p> <p>Wang, J., Huang, J., Liu, S. The production, recovery, and valorization of polyhydroxybutyrate (PHB) based on circular bioeconomy (2024) <i>Biotechnology Advances</i>, 72, art. no. 108340, .</p>
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Táto štúdia má významný dopad na biotechnologickú výrobu biologicky odbúrateľných plastov (PHA). Optimalizácia kultivačných podmienok pre <i>Cupriavidus necator</i> DSM 545 umožňuje efektívnejšiu produkciu biomasy a PHA, čo môže znížiť výrobné náklady a zvýšiť výťažnosť. To podporuje udržateľné riešenia v priemysle plastov, čím sa znižuje závislosť od fosílnych zdrojov. Z ekonomického hľadiska môžu optimalizované procesy prispieť k širšiemu využitiu PHA v komerčných aplikáciách, ako sú obaly či medicínske materiály. Spoločenský dopad spočíva v podpore ekologických alternatív k syntetickým plastom, čo môže viesť k zníženiu plastového odpadu a environmentálnej záťaže.</p>

	<p>This study has important implications for the biotechnological production of biodegradable plastics (PHAs). Optimization of culture conditions for <i>Cupriavidus necator</i> DSM 545 allows for more efficient production of biomass and PHAs, which can reduce production costs and increase yields. This promotes sustainable solutions in the plastics industry, reducing dependence on fossil resources. From an economic point of view, optimised processes can contribute to the wider use of PHA in commercial applications such as packaging or medical materials. The societal impact lies in the promotion of environmentally friendly alternatives to synthetic plastics, which can lead to a reduction in plastic waste and the burden on the environment.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Výstup je orientovaný do problematiky fermentačných technológií, ale i mikrobiológie. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým a biologickým obsahom. The output is oriented to the issues of fermentation biotechnology, but also microbiology. Impacts will be reflected in the teaching of subjects with biotechnological and biological content.</p>

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹	
Kód VTC/Code of the research/artistic/other output (RAO): ¹	

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Ondrejovič Chmelová
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniela
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	doc. RNDr. PhD./ assoc. prof. RNDr. PhD.
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/22796
OCA5. Oblasť posudzovania / Area of assessment ⁴	4. Biotechnológie/ 4. Biotechnology
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2022
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	464621
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://app.crep.sk/?fn=detailBiblioForm&sid=23402970C26F32DFE7C5788723
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>
	The TLC-Bioautography as a Tool for Rapid Enzyme Inhibitors detection-A Review / Legerská, Barbora; Chmelová, Daniela; Ondrejovič, Miroslav; Miertuš, Stanislav. In: Critical Reviews in Analytical Chemistry, 52, 2, 2022, 275-293.
	Článok/article

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://www.tandfonline.com/doi/full/10.1080/10408347.2020.1797467</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[33 %]</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>Microorganisms and plants can be important sources of many compounds with potential pharmaceutical applications. Extraction of these matrices is one of the ways of identifying the presence of inhibitory active substances against enzymes whose high activity leads to serious human diseases including cancer, Parkinson's or Crohn's diseases. The isolation and purification of inhibitors are time-consuming and expensive steps in the analysis of the crude extract and therefore, it is necessary to find a fast, efficient, and inexpensive method for screening extracts of interest. TLC-Bioautography combines the separation of the extract on a thin layer with its subsequent biological analysis. TLC-Bioautography methods have been developed for several classes of enzymes including oxidoreductases, hydrolases and isomerases, and there is a potential for developing functional methods for other classes of enzymes. This review summarizes known TLC-Bioautography methods and their applications for determining the presence of enzyme inhibitors in extracts and compares the effectiveness of different methodological approaches. It also indicates the current state and perspective of the development of TLC-Bioautography and its possible future applications.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<p>Escalante, A.M., Riera, M.B., Salazar, M.O., Furlan, R.L.E. Effect-Directed Synthesis of a Dithioacetal Tyrosinase Inhibitor (2025) European Journal of Organic Chemistry, 28 (1), art. no. e202401006, .</p> <p>Chen, X., Wang, C., Zheng, Q.Y., Hu, W.-C., Xia, X.-H. Emerging advances in biosensor technologies for quorum sensing signal molecules (2025) Analytical and Bioanalytical Chemistry, 417 (1), pp. 33-50.</p> <p>Michelsoni, O.B., Ramallo, I.A., Farroni, A.E., Furlan, R.L.E. A simple thin-layer chromatography autography for the detection of peroxidase inhibitors (2024) Journal of Food Science and Technology, 61 (9), pp. 1722-1732.</p> <p>arahap, A., Triamarta, S., Kharisma, D., Hanifah, W., Iqbal, M., Arifa, N., Ismed, F. EVALUATION OF THE ANTI-TYROSINASE-ANTI-AGING POTENTIAL AND METABOLITE PROFILING FROM THE BIOACTIVE FRACTION OF CORN COB (ZEA MAYS L.) (2024) International Journal of Applied Pharmaceutics, 16 (Special Issue 1), pp. 71-76.</p> <p>Wilson, I.D., Poole, C.F. Planar chromatography – Current practice and future prospects (2023) Journal of Chromatography B: Analytical Technologies in the Biomedical and Life Sciences, 1214, art. no. 123553, .</p>
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Enzymy sú často cieľom aplikácie farmaceutík používaných na liečenie rôznych ochorení. Na tento účel sa používajú inhibítory patriace tak do skupiny synteticky pripravených látok ako aj do skupiny prírodných látok, ktoré je veľmi ťažké identifikovať v hrubých extraktoch donorovaných matric (predovšetkým mikroorganizmov a rastlín). Na uľahčenie identifikácie týchto látok je možné využiť viacero techník, medzi ktoré patrí aj TLC bioautografia. Predmetný článok bol zameraný na prieskum metód pre identifikáciu inhibítorov enzýmov, potenciálne pôsobiaciach ako spúšťače ochorení, Enzymes are often the target of pharmaceutical applications used to treat various diseases. For this purpose, inhibitors belonging to the group of synthetically prepared substances as well as to the group of natural substances, which are very difficult to identify in crude extracts of donor matrices (mainly micro-organisms and plants), are used. Several techniques, including TLC bioautography, can be used to facilitate the identification of these substances. The present paper was aimed at investigating</p>

	methodologies for the identification of enzyme inhibitors potentially acting as disease trigger
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process</p> <p><i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i></p> <p><i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Výstup je orientovaný do problematiky enzymológie, pričom táto práca sa stala podkladom pre rozšírenie metodických postupov cvičených v rámci laboratórnych cvičení, v ktorých je možné využiť enzým ako bioanalytické činidlo umožňujúce nájsť potenciálne využiteľné, farmakologicky významné látky v hrubých extraktoch rastlín. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým a biologickým obsahom. The output is focused on the issue of enzymology, and this work became the basis for the expansion of methodological procedures practiced in laboratory exercises, in which it is possible to use the enzyme as a bioanalytical agent to find potentially useful, pharmacologically important substances in crude plant extracts. Impacts will be reflected in the teaching of subjects with biotechnological and biological content.</p>

Charakteristika predkladaného výstupu tvorivej činnosti / Characteristics of the submitted research/ artistic/other output

Tlačivo VTC slúži na predkladanie výstupov tvorivej činnosti podľa metodiky hodnotenia tvorivých činností (časť V. Metodiky na vyhodnocovanie štandardov) / The form is used to submit the research/artistic/other outputs according to the evaluation methodology of research/artistic/other activities (part V. The Methodology for Standards Evaluation).

ID konania/ID of the procedure: ¹	
Kód VTC/Code of the research/artistic/other output (RAOO): ¹	

OCA1. Priezvisko hodnotenej osoby / Surname awarded to the assessed person ²	Ondrejovič Chmelová
OCA2. Meno hodnotenej osoby / Name awarded to the assessed person ²	Daniela
OCA3. Tituly hodnotenej osoby / Degrees awarded to the assessed person ²	doc. RNDr. PhD./ assoc. prof. RNDr. PhD.
OCA4. Hyperlink na záznam osoby v Registri zamestnancov vysokých škôl / Hyperlink to the entry of the person in the Register of university staff ³	https://www.portalvs.sk/regzam/detail/22796
OCA5. Oblasť posudzovania / Area of assessment ⁴	4. Biotechnológie/ 4. Biotechnology
OCA6. Kategória výstupu tvorivej činnosti / Category of the research/ artistic/other output <i>Výber zo 6 možností (pozri Vysvetlivky k položke OCA6) / Choice from 6 options (see Explanations for OCA6).</i>	Vedecký výstup/ scientific output
OCA7. Rok vydania výstupu tvorivej činnosti / Year of publication of the research/artistic/other output	2020
OCA8. ID záznamu v CREPČ alebo CREUČ (ak je) / ID of the record in the Central Registry of Publication Activity (CRPA) or the Central Registry of Artistic Activity (CRAA) ⁵	203879
OCA9. Hyperlink na záznam v CREPČ alebo CREUČ / Hyperlink to the record in CRPA or CRAA ⁶	https://app.crepk.sk/?fn=detailBiblioForm&sid=BEDB5CC6AC5331222190D0F4C4
Charakteristika výstupu, ktorý nie je registrovaný v CREPČ alebo CREUČ / Characteristics of the output that is not registered in	OCA10. Hyperlink na záznam v inom verejne prístupnom registri, katalógu výstupov tvorivých činností / Hyperlink to the record in another publicly accessible register, catalogue of research/ artistic/other outputs ⁷
	OCA11. Charakteristika výstupu vo formáte bibliografického záznamu CREPČ alebo CREUČ, ak výstup nie je vo verejne prístupnom registri alebo katalógu výstupov / Characteristics of the output in the format of the CRPA or the CRAA bibliographic record, if the output is not available in a publicly accessible register or catalogue of outputs
	OCA12. Typ výstupu (ak nie je výstup registrovaný v CREPČ alebo CREUČ) / Type of the output (if the output is not registered in CRPA or CRAA) <i>Výber zo 67 možností (pozri Vysvetlivky k položke OCA12) / Choice from 67 options (see Explanations for OCA12).</i>
	<p>Comparison of efficiency for monoazo dye removal by different species of white-rot fungi / Pecková, Veronika; Legerská, Barbora; Chmelová, Daniela; Horník, Miroslav; Ondrejovič, Miroslav. In: International Journal of Environmental Science and Technology, 18, 1, 2020, 21-32.</p> <p>Článok/article</p>

<p>OCA13. Hyperlink na stránku, na ktorej je výstup sprístupnený (úplný text, iná dokumentácia a podobne) / Hyperlink to the webpage where the output is available (full text, other documentation, etc.)</p>	<p>https://link.springer.com/article/10.1007/s13762-020-02806-w</p>
<p>OCA14. Charakteristika autorského vkladu / Characteristics of the author's contribution</p>	<p>[30 %]</p>
<p>OCA15. Anotácia výstupu s kontextovými informáciami týkajúcimi sa opisu tvorivého procesu a obsahu tvorivej činnosti a pod. / Annotation of the output with contextual information concerning the description of creative process and the content of the research/artistic/other activity, etc. ⁸Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak ⁹Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</p>	
<p>OCA16. Anotácia výstupu v anglickom jazyku / Annotation of the output in English ⁹Rozsah do 200 slov / Range up to 200 words</p>	<p>The aim of this study was to determine the potential of white-rot fungi, namely <i>Pycnoporus cinnabarinus</i>, <i>Pleurotus ostreatus</i> and <i>Trametes hirsuta</i>, for the mono azo dye Allura Red AC (AR) removal from aqueous solutions. AR belongs to the hardly degradable xenobiotic associated with a neurotoxic effect on humans and animals. Our results suggested that degradation processes driven by the activity of laccases were not involved in the process of AR removal and the predominant mechanism of dye elimination was biosorption. The surface of fungal biomass was analyzed by Fourier transform infrared spectroscopy (FTIR) and Langmuir and Freundlich models of absorption isotherms were applied to describe the biosorption isotherms. Langmuir model fitted the equilibrium data better than Freundlich isotherm according to the corrected Akaike Information Criterion (AICc). From Langmuir model, dead biomass of <i>P. ostreatus</i> modified by heat was the most suitable biosorbent with the maximum sorption capacity of 118.3 ± 9.9 mg/g dried biomass. Obtained results suggest that biomass of white-rot fungi can be used as a suitable and low-cost biosorbent for the removal of azo dyes from contaminated waters.</p>
<p>OCA17. Zoznam najviac 5 najvýznamnejších ohlasov na výstup / List of maximum 5 most significant citations corresponding to the output <i>Rozsah do 200 slov / Range up to 200 words</i></p>	<p>Upadhyay, R., Przystaś, W., Dave, B. Myco-remediation of synthetic dyes: a comprehensive review on contaminant alleviation mechanism, kinetic study and toxicity analysis (2025) <i>International Journal of Environmental Science and Technology</i>, 22 (1), pp. 521-538.</p> <p>Şenol, Z.M., El Messaoudi, N., Ciğeroglu, Z., Miyah, Y., Arslanoğlu, H., Bağlam, N., Kazan-Kaya, E.S., Kaur, P., Georjin, J. Removal of food dyes using biological materials via adsorption: A review (2024) <i>Food Chemistry</i>, 450, art. no. 139398, .</p> <p>Thakur, V., Verma, T.K. Application of Biosorbents in Dye Removal (2024) <i>Biosorbents: Diversity, Bioprocessing, and Applications</i>, pp. 202-217.</p> <p>Ahmad, N., Aslam, S., Hussain, N., Bilal, M., Iqbal, H.M.N. Transforming Lignin Biomass to Value: Interplay Between Ligninolytic Enzymes and Lignocellulose Depolymerization (2023) <i>Bioenergy Research</i>, 16 (3), pp. 1246-1263.</p> <p>Henning, L.M., Simon, U., Abdullayev, A., Schmidt, B., Pohl, C., Nunez Guitar, T., Vakifahmetoglu, C., Meyer, V., Bekheet, M.F., Gurlo, A. Effect of <i>Fomes fomentarius</i> Cultivation Conditions on Its Adsorption Performance for Anionic and Cationic Dyes (2022) <i>ACS Omega</i>, 7 (5), pp. 4158-4169.</p>
<p>OCA18. Charakteristika dopadu výstupu na spoločensko-hospodársku prax / Characteristics of the output's impact on socio-economic practice <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Enzymy a na enzýmoch založené technológie tvoria významnú časť spoločensko-hospodárskeho záujmu a rozvoj tejto problematiky umožňuje napredovanie v rozvoji tzv. zelených technológií vedúcich k produkcii konvenčne využívaných a nových látok biologickou cestou, ktorá spravidla vedie k zníženiu potreby energií a surovín používaných na produkciu tovarov a služieb, ale aj k rozkladu polutantov prenikajúcich do životného prostredia antropogénnou činnosťou. Daný výstup sa konkrétne dotýka produkcie enzýmov zo skupiny lakáz pomocou vláknitých húb bielej hniloby. Enzymes and enzyme-based technologies form a significant part of the socio-economic interest, and the development of this issue allows for progress in the development of so-called green technologies leading to the production of conventionally used and new substances in a biological way, which usually leads to a reduction in the consumption of energy and raw materials used to produce goods and services, but also to the decomposition of pollutants entering the environment by anthropogenic activity. This</p>

	<p>output specifically concerns the production of enzymes from the laccase group by means of fibrous white rot fungi.</p>
<p>OCA19. Charakteristika dopadu výstupu a súvisiacich aktivít na vzdelávací proces / Characteristics of the output and related activities' impact on the educational process <i>Rozsah do 200 slov v slovenskom jazyku / Range up to 200 words in Slovak</i> <i>Rozsah do 200 slov v anglickom jazyku / Range up to 200 words in English</i></p>	<p>Výstup je orientovaný do problematiky enzýmologie a enzýmových technológií, pričom táto práca sa stala podkladom pre rozšírenie metodických postupov cvičených v rámci laboratórnych cvičení o produkciu tejto skupiny enzýmov, čo umožní lepšie pochopenie získavania enzýmov určených pre environmentálne technológie. Dopady sa prejavujú vo výučbe predmetov s biotechnologickým a biologickým obsahom. The output is focused on the issues of enzymology and enzyme technologies, and this work became the basis for the extension of methodological procedures practiced in laboratory exercises for the production of this group of enzymes, which will allow a better understanding of obtaining enzymes for environmental technologies. Impacts will be reflected in the teaching of subjects with biotechnological and biological content.</p>