

Department of Biomaterials and Cosmetic Chemistry

**List of scientific achievements which present a major
contribution to the development of specific discipline**

dr Justyna Kozłowska

Natural sciences

Discipline: Chemical sciences

Appendix No. 4

Toruń 2022

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I. CYCLE OF SCIENTIFIC ARTICLES RELATED THEMATICALLY, PURSUANT TO ART. 219 PARA 1. POINT 2B OF THE ACT

Achievement title: *New solutions in developing cosmetic formulations and polymer materials to reduce the skin barrier.*

The scientific achievement consists of:

- 11 publications (H1-H11),
- 2 patents (PP1, PP2).

H1 **J. Kozłowska***, A. Kaczmarkiewicz, *Collagen matrices containing poly(vinyl alcohol) microcapsules with retinyl palmitate - structure, stability, mechanical and swelling properties*, Polymer Degradation and Stability, 2019, 161, 108-113.

IF = 4.032 (current 5.204); MSHE = 100

My contribution to the work consisted in developing the concept of all research and defining its purpose, developing the methodology for obtaining microparticles and composite materials, selecting research methods necessary to experiment, supervising the research, discussing the obtained results, and preparing the paper for printing. The research was carried out and financed as part of my managing project.

H2 **J. Kozłowska***, N. Stachowiak, W. Prus, *Stability studies of collagen-based microspheres with Calendula officinalis flower extract*, Polymer Degradation and Stability, 2019, 163, 214-219.

IF = 4.032 (current 5.204); MSHE = 100

My contribution to the work consisted in defining the purpose of the work, planning the entire experiment and managing the individual stages of the research, analyzing the results, preparing the manuscript, editing the whole paper, and corresponding with the reviewers. The study was carried out and financed as part of my managing project.

H3 **J. Kozłowska***, N. Stachowiak, A. Sionkowska, *The preparation and characterization of composite materials by incorporating microspheres into a collagen/hydroxyethyl cellulose matrix*, Polymer Testing, 2018, 69, 350-358.

IF = 2.943 (current 4.931); MSHE = 40 (current 100);

My contribution to the publication consisted of defining the scientific problem, planning and supervising the entire research process, developing a methodology for obtaining microparticles and composite materials, discussing the results, writing and editing the manuscript, and securing research funding.

H4 **J. Kozłowska***, N. Stachowiak, A. Sionkowska, *Collagen/Gelatin/Hydroxyethyl Cellulose Composites Containing Microspheres Based on Collagen and Gelatin: Design and Evaluation*, Polymers, 2018, 10 (4), 456.

IF = 3.164 (current 4.967); MSHE = 40 (current 100);

My contribution to the work consisted of developing a prototype of the obtained material, planning all stages of labor, controlling their course, and receiving funds for their implementation. My contribution to this work includes interpreting and describing the obtained results, preparing, editing the manuscript, and discussing it with the reviewers.

H5 **J. Kozłowska***, W. Prus-Walendziak, N. Stachowiak, A. Bajek, L. Kazmierski, B. Tylkowski, *Modification of collagen/gelatin/hydroxyethyl cellulose-based materials by addition of herbal extract-loaded microspheres made from gellan gum and xanthan gum*, Materials (Basel), 2020, 13 (16), 3507.

IF = 3.623 (current 3.748); MSHE = 140

My contribution to the work consisted of defining the scientific problem, developing the methodology for obtaining materials, planning the course of the research, interpreting the results, preparing the manuscript, editing the entirety, and discussing with the journal editor and reviewers. The study was carried out and financed as part of my managing project.

H6 **J. Kozłowska***, K. Pauter, A. Sionkowska, *Carrageenan-based hydrogels: Effect of sorbitol and glycerin on the stability, swelling and mechanical properties*, Polymer Testing, 2018, 67, 7-11.

IF = 2.943 (current 4.931); MSHE = 40 (current 100);

My contribution to the work consisted in defining the research problem, developing the research concept, planning and supervising the various stages of the work, analyzing the results, preparing the manuscript, editing the entirety, and corresponding with the reviewers of the work. I also obtained funding for research.

H7 **J. Kozłowska***, B. Tylkowski, N. Stachowiak, W. Prus-Walendziak, *Controlling the skin barrier quality through the application of polymeric films containing microspheres with encapsulated plant extract*, Processes, 2020, 8 (5) 530.

IF = 2.847 (current 3.352); MSHE = 70

My contribution to the work consisted of presenting research hypotheses, developing the research concept, planning and supervising all stages of the work, interpreting the obtained results, writing the manuscript, and correcting the comments received in the reviews. The study was carried out and financed as part of my managing project.

H8 W. Prus-Walendziak, **J. Kozłowska***
Design of sodium alginate/gelatin-based emulsion film fused with polylactide microparticles charged with plant extract, Materials (Basel), 2021, 14 (4), 745.

IF = 3.748; MSHE = 140

My contribution to the work consisted in defining the concept of the work, planning and supervising research, and obtaining funds. I participated in analyzing the results, and I prepared and sent the manuscript for printing.

H9 W. Prus-Walendziak, **J. Kozłowska***
Lyophilized emulsions in the form of 3D porous matrices as a novel material for topical application, Materials (Basel), 2021, 14 (4), 950.

IF = 3.748; MSHE = 140

My contribution to the publication was to present research hypotheses, develop a concept and work plan, conduct research, and raise funds for research. My participation included analyzing the results, preparing the manuscript, and correspondence with the reviewers of the work.

H10 W. Prus, **J. Kozłowska***, *The influence of new polymeric microbeads in peeling products on skin condition*, *Molecular Crystals and Liquid Crystals*, 2018, 671, 140-147.

IF = 0.559 (current 0.672); MSHE = 15 (current 40)

My contribution to this work included developing the project concept, supervising the research, analyzing and discussing the results, preparing the article for publication, and correspondence with reviewers. The study was carried out and financed as part of my managing project.

H11 **J. Kozłowska***, W. Prus, N. Stachowiak, *Microparticles based on natural and synthetic polymers for cosmetic applications*, *International Journal of Biological Macromolecules*, 2019, 129, 952-956.

IF = 5.162 (current 8.025); MSHE = 100

My contribution to the work consisted of defining the research problem, developing the research concept, planning individual stages of labor and monitoring their course, and obtaining funds for research. My participation included analyzing the results, preparing the manuscript, and correspondence with the reviewers of the work.

PP1 **J. Kozłowska**, W. Prus, *A method of producing a cosmetic composition for exfoliating epidermal cells*, PL nr 239755 B1, 2022.

MSHE = 75

I am the originator of the patent. I developed the research concept and edited the assumptions and content of the patent application.

PP2 J. Kozłowska, W. Prus, *A cosmetic preparation for cleansing and exfoliating the epidermis and the method of its production*, PL nr 236187 B1, 2020.

MSHE = 75

I am the originator of the patent. I developed the research concept and edited the assumptions and content of the patent application.

* corresponding author

Summary

	According to the year of publication	Current
Total IF	36.801	48.53
Total MSHE	1075	1280*

* following the list of the Ministry of Science and Higher Education of 1 December 2021.

II. INFORMATION ON SCIENTIFIC ACTIVITY

a) THE PERIOD PRIOR TO THE AWARD OF THE PhD DEGREE

Before obtaining a PhD, I was the author/co-author of:

- 11 publications in journals distinguished in the Journal Citation Reports (JCR);
- 10 publications in the journals included in the list of the Ministry of Science and Higher Education;
- 2 peer-reviewed non-scored publications.

Σ IF=**26.64** (according to the year of publication)

1. List of articles published in scientific journals

1.1. Publications in journals distinguished in the JCR

1) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, *Photochemical stability of poly(vinyl pyrrolidone) in the presence of collagen*, Polymer Degradation and Stability, 2008, 93, 2127-2132.

IF = 2.320; MSHE = 24

2) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, *Collagen fibrils in UV irradiated poly(vinyl pyrrolidone) films*, Applied Surface Science, 2008, 255, 2030-2039.

IF = 1.576; MSHE = 20

3) A. Sionkowska, A. Planecka, **J. Kozłowska**, J. Skopinska-Wisniewska, *Collagen fibrils formation in poly(vinyl alcohol) and poly(vinyl pyrrolidone) films*, Journal of Molecular Liquids, 2009, 144, 71-74.

IF = 1.278; MSHE = 15

4) A. Sionkowska, A. Planecka, **J. Kozłowska**, J. Skopinska-Wisniewska, *Surface properties of UV-irradiated poly(vinyl alcohol) films containing small amount of collagen*, Applied Surface Science, 2009, 255, 4135-4139.

IF = 1.616; MSHE = 20

5) A. Sionkowska, A. Planecka, **J. Kozłowska**, J. Skopinska-Wisniewska, *Photochemical stability of poly(vinyl alcohol) in the presence of collagen*, Polymer Degradation and Stability, 2009, 94, 383-388.

IF = 2.154; MSHE = 24

6) A. Sionkowska, **J. Kozłowska**, *Characterization of collagen/hydroxyapatite composite sponges as a potential bone substitute*, International Journal of Biological Macromolecules, 2010, 47, 483-487.

IF = 2.502; MSHE = 20

7) A. Sionkowska, J. Skopinska-Wisniewska, A. Planecka, **J. Kozłowska**, *The influence of UV irradiation on the properties of chitosan films containing keratin*, Polymer Degradation and Stability, 2010, 95, 2486-2491.

IF = 2.594; MSHE = 32

8) A. Sionkowska, J. Skopinska-Wisniewska, M. Gawron, **J. Kozłowska**, A. Planecka, *Chemical and thermal cross-linking of collagen and elastin hydrolysates*, International Journal of Biological Macromolecules, 2010, 47, 570-577.

IF = 2.502; MSHE = 20

9) A. Sionkowska, A. Planecka, **J. Kozłowska**, J. Skopinska-Wisniewska, P. Los, *Weathering of chitosan films in the presence of low- and high-molecular weight additives*, Carbohydrate Polymers, 2011, 84, 900-906.

IF = 3.628; MSHE = 40

10) A. Sionkowska, **J. Kozłowska**, *Properties and modification of porous 3-D collagen/hydroxyapatite composites*, International Journal of Biological Macromolecules, 2013, 52, 250-259.

IF = 3.096; MSHE = 20

11) A. Sionkowska, **J. Kozłowska**, S. Lazare, *Modification by UV radiation of the surface of thin films based on collagen extracted from fish scales*, Biointerphases, 2014, 9, 029003.

IF = 3.374; MSHE = 25

1.2. Publications in the journals included in the list of the Ministry of Science and Higher Education

1) J. Skopinska-Wisniewska, A. Sionkowska, **J. Kozłowska**, A. Planecka, *The modification of biomaterials properties by addition of keratin hydrolysates*, Engineering of Biomaterials, 2009, 89-91, 122-124.

MSHE = 4

2) A. Sionkowska, A. Planecka, **J. Kozłowska**, P. Los, J. Skopinska-Wisniewska, *Photochemical stability of chitosan in the presence of small amount of collagen, glutathione, camphoroquinone, phenylalanine and tyrosine*, Engineering of Biomaterials, 2010, 13, 99-101, 90-92.

MSHE = 6

3) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, P. Los, *Surface properties of different chitosan materials*, Engineering of Biomaterials, 2010, 13, 99-101, 53-55.

MSHE = 6

4) J. Skopinska-Winniewska, A. Sionkowska, M. Gawron, **J. Kozłowska**, A. Planecka, *The characterization of cross-linked collagen and collagen-elastin based biomaterial*, Engineering of Biomaterials, 2010, 13, 99-101, 97-99.

MSHE = 6

5) **J. Kozłowska**, A. Sionkowska, *Preparation and properties of a porous three-dimensional collagen scaffolds*, Engineering of Biomaterials, 2011, 14, 109-111, 22-24.

MSHE = 7

6) **J. Kozłowska**, *Hyaluronic acid as a cosmetic raw material*, Cosmetology Today, 2011, 1, 34-42.

MSHE= 1

7) **J. Kozłowska**, A. Sionkowska, *Isolation and characterization of collagen from fish (*Esox lucius*) scale*, Engineering of Biomaterials, 2011, 14, 109-111, 24-26.

MSHE = 7

8) J. Skopinska-Wisniewska, A. Sionkowska, A. Wieczorek, **J. Kozłowska**, A. Planecka, *The mechanical and thermal properties of poly(vinyl alcohol)/elastin hydrolysates blends*, Engineering of Biomaterials, 2011, 14, 109-111, 29-31.

MSHE = 7

9) A. Sionkowska, K. Lewandowska, A. Planecka, P. Szarszewska, K. Krasinska, B. Kaczmarek, **J. Kozłowska**, *Biopolymer blends as potential biomaterials and cosmetic materials*, Trans Tech Publications, Switzerland: Key Engineering Materials, 2014, 583, 95-100.

MSHE = 8

10) A. Sionkowska, **J. Kozłowska**, *Fish scales as a biocomposite of collagen and calcium salts*, Trans Tech Publications, Switzerland: Key Engineering Materials, 2014, 587, 185-190.

MSHE = 8

1.3. Other peer-reviewed publications

1) A. Sionkowska, A. Planecka, **J. Kozłowska**, J. Skopinska-Wisniewska, *Study on the thermal properties of poly(vinyl alcohol) in the presence of collagen*, Copernican Letters, 2010, 1, 112-116.

2) A. Sionkowska, J. Skopinska-Wisniewska, **J. Kozłowska**, A. Planecka, M. Kurzawa, *Photochemical behaviour of hydrolysed keratin*, International Journal of Cosmetic Science, 2011, 33, 503-508.

2. List on presentations given at national or international scientific conferences

2.1. Invited lecture

1) **J. Kozłowska**, A. Sionkowska, *New sources of collagen for biomedical purposes*, II Pomeranian Symposium of Tissue Engineering and Regenerative Medicine, 05.04.2014, Bydgoszcz, Poland.

2.2. Oral presentations

- 1) **J. Kozłowska**, A. Sionkowska, *Influence of various cross-linking techniques on the properties of collagen biomaterials for bone reconstruction*, 5th Copernican International Young Scientists Conference, June 16-18, 2011, Toruń, Poland.
- 2) A. Sionkowska, **J. Kozłowska**, A. Planecka, *Collagen and chitosan based materials containing inorganic particles for biomedical applications*, The 3rd Workshop and 4th Management meeting of the COST TD0903 - Understanding and Manipulating Enzymatic and Proteomic Processes in Biomineralization, October 11-13, 2011, Cluj-Napoca, Romania.
- 3) **J. Kozłowska**, A. Sionkowska, *Collagen and hydroxyapatite composites for tissue engineering*, 6th Copernican International Young Scientists Conference, June 13-15, 2012, Toruń, Poland.
- 4) **J. Kozłowska**, A. Sionkowska, *Spectroscopic studies into the influence of UV radiation on fish collagen*, XXII Biomaterials in Medicine and Veterinary Medicine, October 11-14, 2012, Rytro, Poland.

2.3. Posters

- 1) A. Sionkowska, **J. Kozłowska**, J. Skopinska-Wisniewska, A. Planecka, A. Wieczorek, *The influence of polymer matrix on collagen structure*, V Polish - Ukrainian Conference: Polymers of special applications, June 17-19, 2008, Święta Katarzyna, Poland.
- 2) A. Sionkowska, **J. Kozłowska**, J. Skopinska-Wisniewska, A. Planecka, A. Wieczorek, *The influence of UV irradiation on the surface of poly(vinyl alcohol) blends with collagen*, V Polish - Ukrainian Conference: Polymers of special applications, June 17-19, 2008, Święta Katarzyna, Poland.
- 3) A. Sionkowska, J. Skopinska-Wisniewska, A. Wieczorek, **J. Kozłowska**, A. Planecka, *The influence of structural proteins on photochemical stability of PVA*, V Polish - Ukrainian Conference: Polymers of special applications, June 17-19, 2008, Święta Katarzyna, Poland.
- 4) A. Sionkowska, J. Skopinska-Wisniewska, A. Planecka, **J. Kozłowska**, *The influence of collagen on the surface properties of PVP and PVA films*, IUPAC World Polymer Congress Macro 2008, June 29 - July 4, 2008, Taipei, Taiwan.
- 5) A. Sionkowska, **J. Kozłowska**, J. Skopinska-Wisniewska, A. Planecka, *The influence of UV irradiation on PVP/collagen biomaterials*, Central European Congress of Life Sciences EUROBIOTECH 2008, October 17-19, 2008, Kraków, Poland.

- 6) A. Sionkowska, A. Planecka, J. Skopinska-Wisniewska, **J. Kozłowska**, *The influence of UV irradiation on the morphology of poly(vinyl alcohol) blends with collagen*, Central European Congress of Life Sciences EUROBIOTECH 2008, October 17-19, 2008, Kraków, Poland.
- 7) A. Sionkowska, J. Skopinska-Wisniewska, **J. Kozłowska**, A. Planecka, *Biopolymeric materials modified by UV radiation for medical applications*, National Scientific-Technical Conference Actual Problems of Synthesis and Creation of New Biologically Active Compounds and Pharmaceutical Preparations, October 15-18, 2008, Lviv, Ukraine.
- 8) **J. Kozłowska**, A. Sionkowska, *Influence of polyvinylpyrrolidone on the structure of collagen*, Regional Doctoral Seminar, 24 October 2008, Toruń, Poland.
- 9) A. Sionkowska, **J. Kozłowska**, *Nanostructure and mechanical properties of collagen-hydroxyapatite composites*, International Conference: From macro to nanofillers for structural and functional polymer materials (Eurofillers 2009), June 21-25, 2009, Alessandria, Italy.
- 10) A. Sionkowska, **J. Kozłowska**, *Characterization of the surface properties of hydroxyapatite/collagen/poly(vinyl pyrrolidone) composites for hard tissue repair*, ESF-EMBO Symposium on Biological surfaces and interfaces, June 27 - July 2, 2009, Sant Feliu de Guixols, Spain.
- 11) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, *Comparison of the properties of novel materials based on collagen, chitosan and hydroxyapatite*, 73rd Prague Meetings on Macromolecules 'New Frontiers in Macromolecular Science: From Macromolecular Concepts of Living Matter to Polymer for Better Quality of Life', July 5-9, 2009, Prague, Czech Republic.
- 12) J. Skopinska-Wisniewska, A. Sionkowska, **J. Kozłowska**, A. Planecka, *Photochemical stability of keratin hydrolysates*, 4th European Young Investigators Conference 2009, June 18-21, 2009, Słubice, Poland.
- 13) A. Sionkowska, J. Skopinska-Wisniewska, A. Planecka, **J. Kozłowska**, *Spectroscopic studies into the influence of UV radiation on keratin hydrolysates*, 28th Polymer Degradation Discussion Group Meeting: Environmental and Advanced Polymeric Materials: Degradation, Stabilisation, Modifications and Applications, September 6-10, 2009, Sestri Levante, Italy.
- 14) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, *The influence of keratin addition on the properties of chitosan materials*, 15th Seminar and Workshop, New aspects of the chemistry and applications of chitin and its derivatives, September 28-30, 2009, Toruń, Poland.

- 15) A. Sionkowska, **J. Kozłowska**, J. Skopinska-Wisniewska, *Collagen porous structures as potential bone substitutes*, 3rd Regional Doctoral Seminar, October 23-24, 2009, Toruń, Poland.
- 16) A. Sionkowska, **J. Kozłowska**, J. Skopinska-Wisniewska, A. Planecka, *The influence of UV radiation on the properties of chitosan films with a mixture of keratin*, 3rd Regional Doctoral Seminar, October 23-24 2009, Toruń, Poland.
- 17) J. Skopinska-Wisniewska, A. Sionkowska, **J. Kozłowska**, A. Planecka, *The modification of biomaterials properties by addition of keratin hydrolysates*, XIX Conference on Biomaterials in Medicine and Veterinary Medicine, October 15-18, 2009, Rytro, Poland.
- 18) **J. Kozłowska**, A. Sionkowska, J. Kozłowska, A. Sionkowska, *Obtaining and modifying porous collagen scaffolds for bone tissue reconstruction*, IV Copernican Doctoral Seminar, June 17-19, 2010, Toruń, Poland.
- 19) A. Sionkowska, A. Planecka, **J. Kozłowska**, J. Skopinska-Wisniewska, *Study on the thermal properties of poly(vinyl alcohol) in the presence of collagen*, IV Copernican Doctoral Seminar, June 17-19, 2010, Toruń, Poland.
- 20) A. Sionkowska, J. Skopinska-Wisniewska, M. Gawron, **J. Kozłowska**, A. Planecka, *Chemical cross-linking of collagen and elastin hydrolysates*, IUPAC World Polymer Congress (Macro 2010), July 11-16, 2010, Glasgow, UK.
- 21) A. Sionkowska, A. Planecka, P. Los, J. Skopinska-Wisniewska, **J. Kozłowska**, *Weathering of chitosan films in the presence of additives*, IUPAC World Polymer Congress (Macro 2010), July 11-16, 2010, Glasgow, UK.
- 22) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, P. Los, *The modification of surface properties of chitosan materials by solar radiation*, XVI Seminar and Workshop 'New aspects of the chemistry and applications of chitin and its derivatives', September 22-24, 2010, Zakopane, Poland.
- 23) A. Sionkowska, A. Planecka, **J. Kozłowska**, P. Los, J. Skopinska-Wisniewska, *Modification of photochemical stability of chitosan*, XVI Seminar and Workshop 'New aspects of the chemistry and applications of chitin and its derivatives', September 22-24, 2010, Zakopane, Poland.
- 24) A. Sionkowska, A. Planecka, **J. Kozłowska**, P. Los, J. Skopinska-Wisniewska, *Photochemical stability of chitosan in the presence of small amount of collagen, glutathione, camphoroquinone, phenylalanine and tyrosine*, XX Conference on Biomaterials in Medicine and Veterinary Medicine, October 14-17, 2010, Rytro, Poland.

- 25) A. Sionkowska, **J. Kozłowska**, A. Planecka, J. Skopinska-Wisniewska, P. Los, *Surface properties of different chitosan materials*, XX Conference on Biomaterials in Medicine and Veterinary Medicine, October 14-17, 2010 Rytro, Poland.
- 26) J. Skopinska-Wisniewska, A. Sionkowska, M. Gawron, **J. Kozłowska**, A. Planecka, *The characterization of cross-linked collagen and collagen-elastin based biomaterial*, XX Conference on Biomaterials in Medicine and Veterinary Medicine, October 14-17, 2010, Rytro, Poland.
- 27) A. Sionkowska, **J. Kozłowska**, P. Kubera, *The influence of UV irradiation on collagen from the fish scales*, International Symposium Electromagnetic Fields and Quantum Phenomena in the Biological Systems, 20 May 2011, Poznań, Poland.
- 28) **J. Kozłowska**, A. Sionkowska, *Preparation and modification of porous collagen scaffolds for bone tissue reconstruction*, Copernican Symposium of Students of Natural Sciences, May 25-27, 2011, Toruń, Poland.
- 29) **J. Kozłowska**, A. Sionkowska, *Surface properties of fish collagen films*, 5th Copernican International Young Scientists Conference, June 16-18, 2011, Toruń, Poland.
- 30) **J. Kozłowska**, A. Planecka, A. Sionkowska, D. Witwicki, *Adhesives for medical purposes*, 5th Copernican International Young Scientists Conference, June 16-18, 2011, Toruń, Poland.
- 31) A. Sionkowska, J. Skopinska-Wisniewska, **J. Kozłowska**, A. Planecka, M. Gawron, *Collagen-elastin based materials and their modifications*, THERMEC'2011 - International Conference on Processing and Manufacturing of Advanced Materials, August 1-5, 2011, Quebec City, Canada.
- 32) A. Sionkowska, **J. Kozłowska**, *Synthesis and characterization of biocomposites with different hydroxyapatite collagen ratios*, Polymers for Advanced Technologies 2011, October 2-5, 2011, Lodz, Poland.
- 33) **J. Kozłowska**, A. Sionkowska, *Preparation and properties of a porous three-dimensional collagen scaffolds*, XXI Biomaterials in Medicine and Veterinary Medicine, October 13-16, 2011, Rytro, Poland.
- 34) **J. Kozłowska**, A. Sionkowska, *Isolation and characterization of collagen from fish (*Esox lucius*) scale*, XXI Biomaterials in Medicine and Veterinary Medicine, October 13-16, 2011, Rytro, Poland.
- 35) J. Skopinska-Wisniewska, A. Sionkowska, A. Wieczorek, **J. Kozłowska**, A. Planecka, *The mechanical and thermal properties of poly(vinyl alcohol)/elastin hydrolysates blends*, XXI Biomaterials in Medicine and Veterinary Medicine, October 13-16, 2011, Rytro, Poland.

- 36) J. Kozłowska**, A. Sionkowska, *Structure and mechanical properties of porous collagen-hydroxyapatite nanocomposites for tissue engineering*, NanoFormulation 2012, May 28 - June 01, 2012, Barcelona, Spain.
- 37)** A. Sionkowska, K. Lewandowska, A. Planecka, **J. Kozłowska**, B. Kaczmarek, *Biopolymer blends as potential biomaterials and cosmetic materials*, International Conference: Biomaterials, Tissue Engineering&Medical Devices (BiomMedD'2012), August 29 - September 01, 2012, Constanta, Romania.
- 38) J. Kozłowska**, A. Sionkowska, *Spectroscopic studies into the influence of UV radiation on fish collagen*, XXII Biomaterials in Medicine and Veterinary Medicine, October 11-14, 2012, Rytro, Poland.
- 39) J. Kozłowska**, A. Sionkowska, *Physicochemical properties of three-dimensional collagen matrices with the addition of hydroxyapatite*, 1st Pomeranian Symposium of Tissue Engineering and Regenerative Medicine, 2 march 2013, Bydgoszcz, Poland.
- 40) J. Kozłowska**, A. Sionkowska, P. Kubera, *A tapping mode AFM study of thin films based on collagen extracted from fish scales*, XXV Symposium of the European Society for Biomaterials: 25th European Conference on Biomaterials, September 8-12, 2013 Madrid, Spain.
- 41) J. Kozłowska**, A. Bajek, A. Rynkiewicz, A. Sionkowska, *Microstructure and in vitro properties of material consisting of hydroxyapatite and collagen*, XXV Symposium of the European Society for Biomaterials: 25th European Conference on Biomaterials, September 8-12, 2013 Madrid, Spain.
- 42) J. Kozłowska**, A. Sionkowska, A. Bajek, A. Rynkiewicz, *In vitro degradation of collagen scaffolds*, XXIII Biomaterials in Medicine and Veterinary Medicine, October 10-13, 2013, Rytro, Poland.
- 43)** A. Sionkowska, **J. Kozłowska**, *Fish scales as a biocomposite of collagen and calcium salts*, The 25th Symposium and Annual Meeting of the International Society for Ceramics in Medicine - BIOCERAMICS 25, November 7-10, 2013, Bucharest, Romania.
- 44)** A. Sionkowska, K. Lewandowska, A. Planecka, P. Szarszewska, K. Krasinska, B. Kaczmarek, **J. Kozłowska**, *Biopolymer blends as potential biomaterials and cosmetic materials*, The 25th Symposium and Annual Meeting of the International Society for Ceramics in Medicine - BIOCERAMICS 25, November 07-10, 2013, Bucharest, Romania.
- 45)** A. Sionkowska, **J. Kozłowska**, K. Piechowicz, *Isolation and characterization of collagen obtained from fish scales*, II Pomeranian Symposium of Tissue Engineering and Regenerative Medicine, 05 April 2014, Bydgoszcz, Poland.

- 46) A. Sionkowska, **J. Kozłowska**, M. Skorupska, *Isolation and characterization of collagen obtained from fish skin*, II Pomeranian Symposium of Tissue Engineering and Regenerative Medicine, 05 April 2014, Bydgoszcz, Poland.
- 47) A. Sionkowska, **J. Kozłowska**, *New material for biomedical application made of fish collagen*, 2nd International Conference on Biological and Biomimetic Adhesives (ICBBA 2014), May 6-9, 2014, Istanbul, Turkey.
- 48) A. Sionkowska, **J. Kozłowska**, K. Piechowicz, *Isolation and characterization of acid soluble collagen and pepsin soluble collagen from fish scales of *Esox lucius**, TERMIS EU 2014, June 10-13, 2014, Genova, Italy.
- 49) A. Sionkowska, **J. Kozłowska**, M. Skorupska, *Isolation and characterization of acid-solubilized collagen from the skin of *Brama australis**, TERMIS EU 2014, June 10-13, 2014, Genova, Italy.
- 50) **J. Kozłowska**, A. Sionkowska, M. Skorupska, *Modification of thin keratin films by the addition of fish collagen*, MoDeSt 2014 Conference, August 31 - September 4, 2014, Portorož, Slovenia.
- 51) **J. Kozłowska**, A. Sionkowska, K. Piechowicz, *Modification of the method of collagen extraction from fish tissues*, MoDeSt 2014 Conference, August 31 - September 4, 2014, Portorož, Slovenia.
- 52) **J. Kozłowska**, A. Sionkowska, A. Bajek, A. Rynkiewicz, *In vitro study of a novel collagen: calcium phosphate composites*, 24th Biomaterials in Medicine and Veterinary Medicine, October 9-12, 2014, Ryto, Poland.

3. Information on participation in organizational and scientific committees at national or international conferences

- 1) Membership in the Organizing Committee of the *3rd Regional Doctoral Seminar*, Faculty of Chemistry, Nicolaus Copernicus University in Toruń, October 23-24, 2009, Toruń, Poland.
- 2) Membership in the Organizing Committee of the *4th Copernican Young Scientists Conference*, Faculty of Chemistry, Nicolaus Copernicus University in Toruń, June 17-19, 2010, Toruń, Poland.
- 3) Membership in the Organizing Committee of the *5th Copernican International Young Scientists Conference*, Faculty of Chemistry, Nicolaus Copernicus University in Toruń, June 16-18, 2011, Toruń, Poland.

4. List of project achievements

1) Grant of the Faculty of Chemistry of the Nicolaus Copernicus University (No. 450-Ch) from the statutory grant for young scientists and participants of doctoral studies, *Porous collagen composites with nano-hydroxyapatite*, June - November 2011, principal investigator.

2) Grant of the Faculty of Chemistry of the Nicolaus Copernicus University (No. 1118-Ch) from the statutory grant for young scientists and participants of doctoral studies, *The influence of UV radiation on fish collagen*, June - November 2012, principal investigator.

3) Grant of the Faculty of Chemistry of the Nicolaus Copernicus University (1494-Ch) from the statutory grant for young scientists and participants of doctoral studies, *Properties of collagen biomaterials containing inorganic nanoparticles in vitro conditions*, June - November 2013, principal investigator.

4) Grant NCN, Preludium, UMO-2012/05/N/ST8/02283, *Fish collagen for biomedical, cosmetic, and pharmaceutical applications (isolation and characterization of collagen from a new source)*, 2013-2015, principal investigator.

5. Membership in international or national organizations and scientific societies

Polish Society of Biomaterials (since April 2014).

6. Membership in editorial committees and scientific boards of journals

Co-editor of the newly established Copernican Letters journal (ISSN: 2082 968X):

- vol 1 (2010),

- vol 2 (2011).

7. Information on scientific works reviewed

Review of a scientific publication in the journal 3Biotech [Springer, IF= 2.406].

b) THE PERIOD BETWEEN THE CONFERMENT OF THE PhD DEGREE AND THE AWARD OF THE POST-DOCTORAL DEGREE OF DOCTOR HABILITATED

After obtaining a PhD, until now, I have been the author/co-author of:

- 26 original papers:

- H1-H11* - publications included in the scientific achievement (part I);
- P1-P15 - other scientific and research achievements (part II b; chapter 1; subsection 1.1.);

- 2 review papers:

- P16-P17 - other scientific and research achievements (part II b; chapter 1; subchapter 1.2.);

- 6 chapters in monographs:

- PM1-PM6 - other scientific and research achievements (part II b; chapter 2);

- 2 patents:

- PP1* - patent included in the scientific achievement (part I);
 - PP2* - patent included in the scientific achievement (part I);
-

* shown in part I (page 4)

Σ IF= **104.16** (according to the year of publication)

1. List of articles published in scientific journals

1.1. Original research articles

P.1. J. Kozłowska*, A. Sionkowska, *Effects of different crosslinking methods on the properties of collagen-calcium phosphate composite material*, International Journal of Biological Macromolecules, 2015, 74, 397-403.

IF = 3.138; MSHE = 25

P.2. A. Sionkowska, **J. Kozłowska**, M. Skorupska, M. Michalska, *Isolation and characterization of collagen from the skin of *Brama australis**, International Journal of Biological Macromolecules, 2015, 80, 605-609.

IF = 3.138; MSHE = 25

P.3. J. Kozłowska*, A. Sionkowska, J. Skopinska-Wisniewska, K. Piechowicz, *Northern pike (Esox lucius) collagen: extraction, characterization and potential application*, International Journal of Biological Macromolecules, 2015, 81, 220-227.

IF = 3.138; MSHE = 25

P.4. J. Kozłowska*, A. Sionkowska, A.M. Osyczka, M. Dubiel, *Stabilizing effect of carbodiimide and dehydrothermal treatment crosslinking on the properties of collagen/hydroxyapatite scaffolds*, Polymer International, 2017, 66, 1164-1172.

IF = 2.352; MSHE = 35

P.5. J. Kozłowska*, A. Kaczmarkiewicz, N. Stachowiak, A. Sionkowska, *Evaluation of sebostatic activity of Juniperus communis fruit oil and Pelargonium graveolens oil compared to niacinamide*, Cosmetics, 2017, 4 (3) 36.

MSHE = 15

P.6. B. Kaczmarek, A. Sionkowska, J. Kozłowska, A.M. Osyczka, *New composite materials prepared by calcium phosphate precipitation in chitosan/collagen/hyaluronic acid sponge cross-linked by EDC/NHS*, International Journal of Biological Macromolecules, 2018, 107, 247-253.

IF = 4.784; MSHE = 35

P.7. J. Kozłowska*, A. Jundzill, A. Bajek, M. Bodnar, A. Marszalek, H. Witmanowski, A. Sionkowska, *Preliminary in vitro and in vivo assessment of modified collagen/hydroxyapatite composite*, Materials Letters, 2018, 221, 74-76.

IF = 3.019; MSHE = 35

P.8. W. Prus, J. Kozłowska*, *The influence of collagen from various sources on skin parameters*, Engineering of Biomaterials, 2018, 21 (146) 14-17.

MSHE = 7

P.9. J. Kozłowska*, N. Stachowiak, A. Sionkowska, *Preparation and characterization of collagen/chitosan/poly(ethylene glycol)/nanohydroxyapatite composite scaffolds*, Polymers for Advanced Technologies, 2019, 30, 799-803.

IF = 2.578; MSHE = 70

P.10. J. Skopinska-Wisniewska, **J. Kozłowska**, S. Grabska, N. Stachowiak, B. Kaczmarek, Sionkowska, *The influence of UV-irradiation on the poly(vinyl alcohol)/hyaluronic acid film properties*, *Molecular Crystals and Liquid Crystals*, 2019, 680, 85-95.

IF = 0.512; MSHE = 40

P.11. M. Ammendola, M. Haponska, K. Balik, P. Modrakowska, K. Matulewicz, L. Kazmierski, A. Lis, **J. Kozłowska**, R. Garcia-Valls, M. Giamberini, A. Bajek, B. Tylkowski, *Stability and anti-proliferative properties of biologically active compounds extracted from Cistus L. after sterilization treatments*, *Scientific Reports*, 2020, 10, 6521.

IF = 4.379; MSHE = 140

P.12. N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Effect of plasticizer and surfactant on the properties of poly(vinyl alcohol)/chitosan films*, *International Journal of Biological Macromolecules*, 2020, 164, 2100-2107.

IF = 6.953; MSHE = 100

P.13. J. Skopinska-Wisniewska, S. Grabska-Zielinska, **J. Kozłowska**, B. Kaczmarek-Szczepańska, N. Stachowiak, A. Sionkowska, *Spectroscopic studies of UV-irradiated poly(vinyl alcohol)/elastin blends*, *International Journal of Polymer Analysis and Characterization*, 2021, 26, 84-96.

IF = 1.837; MSHE = 70

P.14. B. Kaczmarek-Szczepanska, J. Ostrowska, **J. Kozłowska**, Z. Szota, A.A. Brozyna, R. Dreier, R.J. Reiter, A.T. Slominski, K. Steinbrink, K. Kleszczynski, *Evaluation of Polymeric Matrix Loaded with Melatonin for Wound Dressing*, *International Journal of Molecular Sciences*, 2021, 22, 5658.

IF = 6.208; MSHE = 140

P.15. N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Freeze-dried matrices composed of degradable polymers with surfactant-loaded microparticles based on pectin and sodium alginate*, *Materials (Basel)*, 2021, 14, 3044.

IF = 3.748; MSHE = 140

1.2. Review papers

P.16. V. Marturano, **J. Kozłowska**, A. Bajek, M. Giamberini, V. Ambrogi, P. Cerruti, R. Garcia-Valls, J.M. Montornes, B. Tylkowski, *Photo-triggered capsules based on lanthanide-doped upconverting nanoparticles for medical applications*, *Coordination Chemistry Reviews*, 2019, 398, 213013.

IF = 15.367; MSHE = 200

P.17. J. Skopinska-Wisniewska, S. De la Flor, **J. Kozłowska***, *From supramolecular hydrogels to multifunctional carriers for biologically active substances*, *International Journal of Molecular Sciences*, 2021, 22 (14), 7402.

IF = 6.208; MSHE = 140

* corresponding author

2. List of published chapters in scientific monographs

PM1. N. Stachowiak, A. Sionkowska, **J. Kozłowska***, *Development of a method of obtaining biopolymer microspheres*, in *Development of natural and agricultural sciences*; ed. K. Mikolajczak, M. Kubiak, Student Government of the Faculty of Agriculture and Bioengineering, PULS, Poznań 2018, 113-120; ISBN 978-83-943832-2-0.

MSHE = 5

PM2. **J. Kozłowska**, *Legislation*, in *Cosmetic chemistry - selected issues*/edited by Alina Sionkowska, Nicolaus Copernicus University Scientific Publishers, Toruń 2019, 21-26; ISBN: 978-83-231-4071-9.

MSHE = 20

PM3. **J. Kozłowska**, *The structure of skin and appendages*, in *Cosmetic chemistry - selected issues*/edited by Alina Sionkowska, Nicolaus Copernicus University Scientific Publishers, Toruń 2019, 27-55; ISBN: 978-83-231-4071-9.

MSHE = 20

PM4. **J. Kozłowska***, K. Pauter, J. Skopinska-Wisniewska, A. Sionkowska, *Design and Characterization of Porous Collagen/Gelatin/Hydroxyethyl Cellulose Matrices Containing Microspheres Based on κ -Carrageenan*, w: *Materials design and applications II (Advanced*

Structured Materials: vol 98) ed. Lucas F. M. da Silva, Springer International Publishing, Cham 2019, 151-157, ISBN: 978-3-030-02256-3

MSHE = 20

PM5. J. Kozłowska, A. Bajek, N. Stachowiak, W. Prus-Walendziak, B. Tylkowski, *Application of microencapsulation in medical and pharmaceutical industry*, w: *Microencapsulation*/ed. B. Tylkowski, M. Giamberini, S. Fernandez Prieto, Walter de Gruyter GmbH, Berlin 2020, 131-158; ISBN: 978-3-11-064176-9.

MSHE = 20

PM6. J. Kozłowska, *Polymer materials modified with the addition of micro-particles*, in *Modification of polymers - the state and prospects in 2021*, Tempo, Wrocław 2021, 126-130; p-ISBN: 978-83-86520-25-1.

MSHE = 5

* corresponding author

3. List on presentations given at national or international scientific conferences

3.1. Invited lecture

1) **J. Kozłowska**, *Incorporation of microparticles into polymer matrix*, International Symposium on Encapsulation Technologies, The Chemistry Technology Centre (CTQ), Universitat Rovira i Virgili, October 22-24, 2018, Tarragona, Spain.

2) **J. Kozłowska**, *Application of microparticles in medicine and cosmetics industry*, Scientific Group 'Materials in Medicine', Gdańsk University of Technology, 29.10.2018, Gdańsk, Poland.

3) **J. Kozłowska**, W. Prus-Walendziak, *Sodium alginate/gelatin-based materials fused with polylactide microparticles as tools to improve the activity of active substance to be administered through the skin*, 7th International Caucasian Symposium on Polymers and Advanced Materials (ICSP&AM 7), July 27-30, 2021, Tbilisi, Georgia.

4) **J. Kozłowska**, *Application of microparticles in medicine and cosmetics industry*, Biocosmetology Section of the Scientific Club of Biologists of the University of Life Sciences in Lublin, Poland, 03.11.2021 (on-line).

3.2. Oral presentations

- 1) **J. Kozłowska**, A. Sionkowska, A. Jundzill, *Materials based on collagen and hydroxyapatite for bone tissue regeneration*, 9th Copernican PhD Seminar, June 24-26, 2015, Toruń, Poland.
- 2) **J. Kozłowska**, K. Pauter, A. Sionkowska, *Optimizing the recipe of eye pads*, X Copernican PhD Seminar, June 21-24, 2016, Bachotek, Poland.
- 3) A. Kaczmarkiewicz, **J. Kozłowska**, A. Sionkowska, *Modification of collagen matrices with the addition of microparticles*, Chemistry for beauty and health, June 8-10, 2017, Toruń, Poland.
- 4) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *Modification of polymer matrices by adding microspheres*, Chemistry for beauty and health, June 8-10, 2017, Toruń, Poland.
- 5) A. Kaczmarkiewicz, **J. Kozłowska**, *Modification of collagen matrix with addition of microcapsules*, XI Copernican International Young Scientists Conference, June 28-30, 2017, Toruń, Poland.
- 6) N. Stachowiak, **J. Kozłowska**, *Modification of polymer matrix with microspheres*, XI Copernican International Young Scientists Conference, June 28-30, 2017, Toruń, Poland.
- 7) K. Pauter, **J. Kozłowska**, A. Sionkowska, *Study of moisturizing properties of collagen from different sources*, IV Symposium 'Biophysics and medicine: collagen in medicine and biology', September 21-22, 2017, Poznań, Poland.
- 8) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *Comparison of the properties of gelatin and collagen-gelatin microspheres*, VIII Copernican Symposium of Students of Life Sciences, March 24-25, 2018, Toruń, Poland.
- 9) W. Prus, **J. Kozłowska**, *Optimization of the size of sodium alginate microcapsules used in the recipe of a new peeling for cosmetic purposes*, II National Symposium of Natural and Agricultural Sciences, April 7-8, 2018, Poznań, Poland.
- 10) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *Assessment of the impact of the cross-linking process on the rate of release of the active substance from microparticles*, II National Symposium of Natural and Agricultural Sciences, April 7-8, 2018, Poznań, Poland.
- 11) W. Prus, **J. Kozłowska**, *The influence of new polymeric microbeads in peeling products on skin condition*, 11th International Conference 'Electronic Processes in Organic and Inorganic Materials (ICEPOM-11)', May 21-25, 2018, Ivano-Frankivsk, Ukraine.

- 12) W Prus, **J. Kozłowska**, *Comparison of the influence of polyethylene and new polymeric microbeads in peeling products on skin condition*, Chemistry for Beauty and Health, June 13-16, 2018, Torun, Poland.
- 13) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *Controlled release of Calendula officinalis flower extract from sodium alginate microparticles*, XII Copernican International Young Scientists Conference, June 28-29, 2018, Torun, Poland.
- 14) W. Prus, **J. Kozłowska**, *The influence of collagen from various sources on skin parameters*, 27th Annual Conference of the Polish Society for Biomaterials 'Biomaterials in Medicine and Veterinary Medicine', October 11-14, 2018, Rytro, Poland.
- 15) N. Stachowiak, **J. Kozłowska**, *The influence of the polymer shell on the properties of microspheres*, XIII Wrocław Students' Chemical Symposium, November 17-18, 2018, Wrocław, Poland.
- 16) W. Prus-Walendziak, **J. Kozłowska**, *Emulsion films modified with microparticles for cosmetic applications*, 4th Interdisciplinary Nano(&)BioMaterials Conference - from theory to application (NaBioMat 2019), June 6-7, 2019, Toruń Poland.
- 17) N. Stachowiak, J. Kowalonek, H. Kaczmarek, **J. Kozłowska**, *The use of whey protein isolate as a matrix for the encapsulation of the active substance*, 4th Interdisciplinary Nano(&) BioMaterials Conference - from theory to application (NaBioMat 2019), June 6-7, 2019, Toruń, Poland.
- 18) W. Prus-Walendziak, **J. Kozłowska**, *An innovative cosmetic preparation for exfoliating dead epidermal cells*, XIII Copernican PhD Seminar, June 16-18, 2019, Bachotek, Poland.
- 19) D. Czapska, **J. Kozłowska**, *Evaluation of the effectiveness of the emulsion containing microcapsules*, XIII Copernican PhD Seminar, June 16-18, 2019, Bachotek, Poland.
- 20) A. Lipińska, **J. Kozłowska**, *Carrageenan-based polymer matrices for cosmetic purposes*, XIII Copernican PhD Seminar, June 16-18, 2019, Bachotek, Poland.
- 21) P. Beling, **J. Kozłowska**, *Optimization of the plant extract encapsulation process in microcapsules based on hyaluronic acid and sodium alginate*, XIII Copernican PhD Seminar, June 16-18, 2019, Bachotek, Poland.
- 22) M. Sienkiewicz, **J. Kozłowska**, *Materials based on guar gum with the addition of gelatin microspheres for cosmetic applications*, XIII Copernican PhD Seminar, June 16-18, 2019, Bachotek, Poland.
- 23) **J. Kozłowska**, N. Stachowiak, W. Prus-Walendziak, A. Muszyńska, *Functional materials containing microparticles in polymer matrices for the controlled release of active substances*,

Modern implantology: dilemmas and hopes: 2nd Polish National Scientific Conference Implants 2019, June 28-29, 2019, Gdańsk, Poland.

24) J. Kozłowska, M. Sienkiewicz, A. Lipińska, N. Stachowiak, *Materials based on guar gum with the addition of polymer microspheres for medical and cosmetic applications*, 6th International Caucasian Symposium on Polymers and Advanced Materials (ICSP&AM 6), July 17-20, 2019, Batumi, Georgia.

25) J. Kozłowska, W. Prus, N. Stachowiak, *Modification of sodium alginate/starch films by addition of microspheres*, AAAFM-UCLA International Conference, August 19-22, 2019, Los Angeles, USA.

26) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Optimization of the method for design polymer films based on poly(vinyl alcohol) and chitosan*, 1st International Conference Functional and Engineering Materials (FEM 2019), October 16-18, 2019, Lodz, Poland.

27) W. Prus-Walendziak, **J. Kozłowska**, *The effect of the addition of microparticles on the properties of emulsion films*, 1st International Conference Functional and Engineering Materials (FEM 2019), October 16-18, 2019, Lodz, Poland.

28) W. Prus-Walendziak, M. Michalska-Sionkowska, **J. Kozłowska**, *Characteristics of emulsion films based on sodium alginate and gelatin*, BioOrg 2019: 3rd National Symposium of Bioorganic, Organic and Biomaterials Chemistry, 07.12.2019, Poznań, Poland.

29) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Study of the properties of polymer matrices containing microparticles with the addition of a surfactant*, Copernican Doctoral E-Seminar, 07.09.2020, Toruń, Poland (on-line).

30) W. Prus-Walendziak, **J. Kozłowska**, *Polymer composite materials containing microparticles with plant extract*, Copernican PhD E-Seminar, 07.09.2020, Toruń, Poland (on-line).

31) W. Prus-Walendziak, T. Douglas, **J. Kozłowska**, *Microcapsules with herbal preparations for dermatological applications*, UK-Poland Bioinspired Materials Conference, November 23-24, 2020, Lancaster, UK & Krakow, Poland (on-line).

32) J. Kozłowska, W. Prus-Walendziak, N. Stachowiak, A. Bajek, L. Kazmierski, *Gellan gum-based microparticles as carriers of active substances in polymer scaffolds*, Concept versus reality in modern solutions: 3rd Polish National Scientific Conference Implants 2021, 18 June 2021, Gdańsk, Poland (on-line).

33) N. Stachowiak, **J. Kozłowska**, J. Kowalonek, *Obtaining microspheres using an encapsulator and analyzing particle size by laser diffraction*, E-Spring Congress of the Students' Section of the Polish Chemical Society, May 27-29, 2021 (on-line).

34) W. Prus-Walendziak, **J. Kozłowska**, *Polymer microparticles as carriers of plant extracts with antioxidant properties*, E-Spring Congress of the Students' Section of the Polish Chemical Society, May 27-29, 2021 (on-line).

35) W. Prus-Walendziak, T.E.L. Douglas, **J. Kozłowska**, *Chitosan microparticles containing plant extracts intended for skin changed during anticancer treatment*, UK-Russia Conference Advanced Biomaterials to Combat Cancer, December 8-10, 2021, Lancaster, UK.

3.3. Posters

1) **J. Kozłowska**, A. Sionkowska, *Surface properties of thin films based on collagen from scales of northern pike (*Esox lucius*)*, Central European Conference on Regenerative Medicine (CECRM 2015), March 14-15, 2015, Bydgoszcz, Poland.

2) **J. Kozłowska**, A. Sionkowska, K. Piechowicz, *Assessment of the properties of fish collagen from a new source for use in the cosmetics industry*, 9th Copernican PhD Seminar, June 24-26, 2015, Toruń, Poland.

3) **J. Kozłowska**, A. Sionkowska, *Mechanical properties of collagen/hydroxyapatite based materials*, 27th European Conference on Biomaterials, August 30 - September 3, 2015, Krakow, Poland.

4) **J. Kozłowska**, A. Sionkowska, A. Blachowska, *Collagen/chitosan porous scaffolds with improved biostability for tissue engineering*, Creating life in 3D: Conference on Frontiers in Material and Life Sciences, September 2-4, 2015, Brno, Czech Republic.

5) J. Skopinska-Wisniewska, A. Sionkowska, **J. Kozłowska**, *PEG-NHS as a cross-linking agent for collagen/elastin matrices*, 11th International Conference on Protein Stabilisation, May 9-11, 2016, Istanbul, Turkey.

6) **J. Kozłowska**, A. Sionkowska, *Collagen materials modified with the addition of inorganic nanoparticles*, NaBioMat 2016, June 2-3, 2016, Toruń, Poland.

7) **J. Kozłowska**, A. Sionkowska, A. Blachowska, *Modifying the properties of collagen biomaterials with the addition of chitosan, hydroxyapatite and poly(ethylene glycol)*, 10th Copernican PhD Seminar, June 21-24, 2016, Bachotek, Poland.

8) M. Zapiec, A. Filipiak-Szok, **J. Kozłowska**, M. Kurzawa, *Phytochemical analysis of marshmallow in terms of the use of the extract in cosmetic products*, X Copernican PhD Seminar, June 21-24, 2016, Bachotek, Poland.

- 9) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *Ingredients of cosmetics with sebostatic effect*, Between the sciences - Congress of Physicists and Chemists: 5th Polish General Conference for Students and PhD Students, 16.09.2016, Chorzów, Poland.
- 10) A. Kaczmarkiewicz, **J. Kozłowska**, A. Sionkowska, *Assessment of the sebostatic effect of cosmetics for oily skin*, Between the sciences - Congress of Physicists and Chemists: 5th General Poland Conference for Students and PhD Students, 16.09.2016, Chorzów, Poland.
- 11) **J. Kozłowska**, A. Sionkowska, *The properties of collagen/chitosan porous matrices in the presence of small amount of poly(ethylene)glycol*, 25th Biomaterials in Medicine and Veterinary Medicine: Anniversary Conference, October 13-16, 2016, Rytro, Poland.
- 12) W. Prus, **J. Kozłowska**, A. Sionkowska, *Developing a recipe for a new peeling for cosmetic purposes*, Chemistry for Beauty and Health, June 8-10, 2017, Toruń, Poland.
- 13) A. Kowalska, **J. Kozłowska**, A. Sionkowska, *Formation of alginate capsules and alginate-chitosan for cosmetic purposes*, Chemistry for Beauty and Health, June 8-10, 2017, Toruń, Poland.
- 14) B. Kaczmarek, A. Sionkowska, **J. Kozłowska**, K. Lukowicz, A. M. Osyczka, *Precipitation of calcium phosphate in matrices based on chitosan, collagen and hyaluronic acid cross-linked EDC/NHS: in vitro studies for 3D materials*, Chemistry for Beauty and Health, June 8-10, 2017, Toruń, Poland.
- 15) A. Muszynska, **J. Kozłowska**, A. Sionkowska, *Assessment of the influence of conditioners on hair combability*, Chemistry for Beauty and Health, June 8-10, 2017, Toruń, Poland.
- 16) **J. Kozłowska**, K. Pauter, A. Sionkowska, *Moisturizing properties of hydrogel materials based on carrageenan*, Chemistry for Beauty and Health, June 8-10, 2017, Toruń, Poland.
- 17) K. Pauter, **J. Kozłowska**, A. Sionkowska, *Moisturizing properties of the carrageenan-based hydrogel*, XI Copernican International Young Scientists Conference, June 28-30, 2017, Toruń, Poland.
- 18) **J. Kozłowska**, A. Kaczmarkiewicz, N. Stachowiak, A. Sionkowska, *Preparation of new materials based on the incorporation of microparticles into collagen matrices*, 5th International Caucasian Symposium on Polymers and Advanced Materials (ICSP&AM5), July 2-5, 2017, Tbilisi, Georgia.
- 19) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *New polymer materials for cosmetic applications*, 4th Poznań Symposium of Young Scientists, 18.11.2017, Poznań, Poland.
- 20) P. Beling, **J. Kozłowska**, *The permeability assay of active compounds in cosmetic emulsion*, Chemistry for Beauty and Health, June 13-16, 2018, Torun, Poland.

- 21) K. Pauter, **J. Kozłowska**, *Preparation and characterization of carrageenan based microparticles*, Chemistry for Beauty and Health, June 13-16, 2018, Torun, Poland.
- 22) N. Stachowiak, **J. Kozłowska**, A. Sionkowska, *Preparation and characterization of microparticles based on sodium alginate with incorporated Calendula officinalis flower extract*, Chemistry for Beauty and Health, June 13-16, 2018, Torun, Poland.
- 23) **J. Kozłowska**, K. Pauter, J. Skopinska-Wisniewska, A. Sionkowska, *Design and characterization of porous collagen/gelatin matrices containing microspheres based on κ -carrageenan for controlled release*, 2nd International Conference on Materials Design and Applications 2018 (MDA 2018), July 5-6, 2018, Porto, Portugal.
- 24) **J. Kozłowska**, N. Stachowiak, A. Bajek, A. Sionkowska, L. Kazmierski, *Evaluation of the in vitro response of keratinocytes and fibroblasts to collagen-hydroxyethyl cellulose matrices with incorporated collagen-gelatin microspheres*, 4th International Conference on Biomedical Polymers & Polymeric Biomaterials (ISBPPB 2018), July 15-18, 2018, Kraków, Poland.
- 25) J. Skopinska-Wisniewska, **J. Kozłowska**, A. Sionkowska, *Collagen hydrogels modified by cyclodextrines addition*, 4th International Conference on Biomedical Polymers & Polymeric Biomaterials (ISBPPB 2018), July 15-18, 2018, Kraków, Poland.
- 26) **J. Kozłowska**, M. Kowalczyk, A. Sionkowska, N. Stachowiak, *Design and characterization of collagen-based sponges containing gellan gum microspheres*, 10th International Conference of Modification, Degradation and Stabilization of Polymers (MoDeSt2018), September 2-6, 2018, Tokyo, Japan.
- 27) W. Prus, **J. Kozłowska**, *The influence of collagen from various sources on skin parameters*, 27th Annual Conference of the Polish Society for Biomaterials 'Biomaterials in Medicine and Veterinary Medicine', October 11-14, 2018, Rytro, Poland.
- 28) **J. Kozłowska**, O. Tybinkowska, A. Sionkowska, *Mechanical properties of porous collagen/gelatin/hydroxyethyl cellulose matrices containing microspheres based on sodium alginate*, 27th Annual Conference of the Polish Society for Biomaterials 'Biomaterials in Medicine and Veterinary Medicine', October 11-14, 2018, Rytro, Poland.
- 29) J. Skopinska-Wisniewska, **J. Kozłowska**, A. Bajek, A. Sionkowska, *Cyclodextrines as an modifying agent for protein matrices*, 27th Annual Conference of the Polish Society for Biomaterials 'Biomaterials in Medicine and Veterinary Medicine', October 11-14, 2018, Rytro, Poland.
- 30) N. Stachowiak, J. Kowalonek, H. Kaczmarek, **J. Kozłowska**, *Optimization of the method of obtaining microparticles based on whey protein isolate*, XIII Copernican PhD Seminar, June 16-18, 2019, Bachotek, Poland.

- 31) N. Stachowiak, **J. Kozłowska**, H. Kaczmarek, *Eco-friendly composite materials based on biodegradable polymers and surfactants*, AAAFM-UCLA International Conference, August 19-22, 2019, Los Angeles, USA.
- 32) N. Stachowiak, W. Prus-Walendziak, T. Douglas, **J. Kozłowska**, *The preparation and characterization of microparticles based on whey protein isolate*, 28th Biomaterials in Medicine and Veterinary Medicine: Annual Conference, October 10-13, 2019, Rytro, Poland.
- 33) A. Lipinska, M. Sienkiewicz, **J. Kozłowska**, *Hydrogels with the addition of gelatin microparticles for cosmetic purposes*, BioOrg 2019: 3rd National Symposium on Bioorganic, Organic and Biomaterials Chemistry, 07.12.2019, Poznań, Poland.
- 34) M. Sienkiewicz, A. Lipinska, **J. Kozłowska**, *Hydrogel matrices based on guar gum for cosmetic applications*, BioOrg 2019: 3rd National Symposium of Bioorganic, Organic and Biomaterials Chemistry, 07.12.2019, Poznań, Poland.
- 35) **J. Kozłowska**, M. Sienkiewicz, A. Lipinska, *Hydrogel-based materials for delivery medicinal plant extracts - preliminary studies*, 29th Conference on Biomaterials in Medicine and Veterinary Medicine, October 15-18, 2020, Rytro, Poland.
- 36) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *The influence of cocamidopropyl betaine on the mechanical and thermal properties of polymer films*, 29th Conference on Biomaterials in Medicine and Veterinary Medicine, October 15-18, 2020, Rytro, Poland.
- 37) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Polymer matrices containing microparticles based on sodium alginate and pectin with surfactant as a substitute for wet wipes*, UK-Poland Bioinspired Materials Conference, November 23-24, 2020, Lancaster, UK & Krakow, Poland (on-line).
- 38) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Polymer films as an ecological substitute for wet wipes - study of mechanical and surface properties*, 9th Copernican Symposium of Life Sciences Students, September 18-20, 2020, Toruń, Poland (on-line).
- 39) W. Prus-Walendziak, **J. Kozłowska**, *Biophysical parameters of the skin after the application of emulsion films on the skin*, 9th Copernican Symposium of Students of Life Sciences, September 18-20, 2020, Toruń, Poland (on-line).
- 40) **J. Kozłowska**, W. Prus-Walendziak, N. Stachowiak, T. Douglas, *Polymeric matrices based on gelatin and isolated whey protein with pot marigold extract for topical application*, 7th International Caucasian Symposium on Polymers and Advanced Materials (ICSP&AM7), July 27-30, 2021, Tbilisi, Georgia.
- 41) W. Prus-Walendziak, **J. Kozłowska**, *Examination of skin barrier quality, hydration and colour after the application of freeze-dried emulsions*, Chemistry & Biotechnology International

Conference (ChemBiotIC), Wrocław University of Science and Technology, June 24-25, 2021, Wrocław, Poland (on-line).

42) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Degradation test of microparticles based on sodium alginate and gellan gum under different conditions*, Chemistry & Biotechnology International Conference (ChemBiotIC), Wrocław University of Science and Technology, June 24-25, 2021, Wrocław, Poland (on-line).

43) N. Stachowiak, **J. Kozłowska**, J. Kowalonek, *Assessment of the stability of the microspheres made from biodegradable polymers*, Implants 2021: Concept and reality in contemporary solutions, 18.06.2021, Gdańsk, Poland (on-line).

44) W. Prus-Walendziak, **J. Kozłowska**, *Study of the structure of porous materials based on freeze-dried emulsions*, Implants 2021: Concept and reality in contemporary solutions, 18.06.2021, Gdańsk, Poland (on-line).

45) **J. Kozłowska**, *Polymer materials modified with the addition of microparticles*, 25th Scientific Conference 'Modification of Polymers', September 6-9, 2021, Szklarska Poręba, Poland.

46) W. Prus-Walendziak, **J. Kozłowska**, *Extraction of biologically active compounds from plant raw materials for use in skin care products for oncology patients*, 14th Copernican PhD Seminar, September 20-22, 2021, Toruń, Poland.

47) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *The mechanical properties of microparticles based on sodium alginate and gellan gum*, XIV Copernican PhD Seminar, September 20-22, 2021, Toruń, Poland.

48) K. Istał, **J. Kozłowska**, *Hemp raw materials in cosmetics - market analysis*, XIV Copernican Doctoral Seminar, September 20-22, 2021, Toruń, Poland.

49) E. Golinska, **J. Kozłowska**, *Analysis of the scope of application of plant raw materials in hair care cosmetics*, 14th Copernican Doctoral Seminar, September 20-22, 2021, Toruń, Poland.

50) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Mechanical properties of polymer beads after immersion in solutions of different pH*, 30th Conference on Biomaterials in Medicine and Veterinary Medicine, October 14-17, 2021, Ryto, Poland.

51) N. Stachowiak, A. Burkowska-But, **J. Kozłowska**, J. Kowalonek, *Biodegradation of surfactant-loaded polymer beads in soil and sea water*, The Silesian Meetings on Polymer Materials (POLYMAT 2022), 17.03.2022, Zabrze, Poland.

- 52) W. Prus-Walendziak, **J. Kozłowska**, *Phytochemical studies and evaluation of the antioxidant activity of extracts prepared from different plants and extraction solvents*, The Silesian Meetings on Polymer Materials (POLYMAT 2022), 17.03.2022, Zabrze, Poland.
- 53) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Mechanical tests of agar/chitosan lyophilized matrices containing plasticizer and Saponaria officinalis root extract*, 10th International Conference on Mechanochemistry and Mechanical Alloying (INCOME 2022), June 6-10, 2022, Cagliari, Sardinia.
- 54) W. Prus-Walendziak, T.E.L. Douglas, **J. Kozłowska**, *Sunflower oil and whey protein isolate-based bigels - mechanical properties*, 10th International Conference on Mechanochemistry and Mechanical Alloying (INCOME 2022), June 6-10, 2022, Cagliari, Sardinia.
- 55) N. Stachowiak, **J. Kozłowska**, J. Kowalonek, *Soapwort root extract (Saponaria officinalis L.) as a source of saponins, i.e. natural surfactants*, XV Copernican Doctoral Seminar, June 20-22, 2022, Toruń, Poland.
- 56) W. Prus-Walendziak, T.E.L. Douglas, **J. Kozłowska**, *Bigels - modern materials based on hydrogel and oleogel: study of mechanical properties and degree of swelling*, XV Copernican Doctoral Seminar, June 20-22, 2022, Toruń, Poland.
- 57) W. Prus-Walendziak, T.E.L. Douglas, **J. Kozłowska**, *Casting light on the mechanical properties of materials based on freeze-dried bigels*, 2022 RACI National Congress 'Chemistry: Catalysing solutions to global challenges', July 03-08, 2022, Brisbane, Australia.
- 58) N. Stachowiak, J. Kowalonek, **J. Kozłowska**, *Characteristics of biodegradable spongy materials fused with plant extract with washing properties as prototype wet wipes*, 8th EuChemS Chemistry Congress (ECC8), August 28 - September 1, 2022, Lisbon, Portugal.
- 59) W. Prus-Walendziak, T. Douglas, **J. Kozłowska**, *Physicochemical properties of porous bigel-based materials composed of sodium alginate/whey protein isolate hydrogel and sunflower oil oleogel*, 8th EuChemS Chemistry Congress (ECC8), August 28 - September 1, 2022, Lisbon, Portugal.
- 60) **J. Kozłowska**, W. Prus-Walendziak, N. Stachowiak, J. Skopinska-Wisniewska, B. Kaczmarek-Szczepanska, *Sodium alginate/inulin microparticles containing Calendula officinalis flower extract for dermatologic applications*, 32nd Annual Conference of the European Society for Biomaterials (ESB 2022), September 04-08, 2022, Bordeaux, France.
- 61) **J. Kozłowska**, E. Golinska, K. Istal, B. Diarra, W. Prus-Walendziak, N. Stachowiak, *New protective materials with a skincare function*, 31st Conference on Biomaterials in Medicine and Veterinary Medicine, October 13-16, 2022, Rytro, Poland.

62) G. Grudzien, M. Matuszewska, M. Niedbala, A. Mielewczyk-Gryn, **J. Kozłowska**, A. Ronowska, M. Wekwejt, *Selection of parameters for the production of magnesium potassium phosphate cement with appropriate properties for medical applications*, 31st Conference on Biomaterials in Medicine and Veterinary Medicine, October 13-16, 2022, Rytro, Poland.

4. Information on participation in organizational and scientific committees at national or international conferences

- 1) *Chemistry for beauty and health*, June 8-10, 2017, Toruń, Poland - membership in the organizing committee; reviewer of the Young Session.
- 2) *XI Copernican International Young Scientists Conference*, June 28-30, 2017, Torun, Poland - membership in the scientific committee.
- 3) *Chemistry for Beauty and Health*, June 13-16, 2018, Torun, Poland – membership in the organizing committee; reviewer of the Young Session.
- 4) *XII Copernican International Young Scientists Conference*, June 28-29, 2018, Torun, Poland - membership in the scientific committee.
- 5) *4th Interdisciplinary Conference NaBioMat 2019 - from theory to application*, June 6-7, 2019, Toruń, Poland - membership in the organizing committee, chairman of the session.
- 6) *XIII Copernican Doctoral Seminar*, June 16-18, 2019, Bachotek, Poland - membership in the scientific committee.
- 7) *Copernican Doctoral E-Seminar*, 07.09.2020, Toruń, Poland - membership in the scientific committee.
- 8) *7th International Caucasian Symposium on Polymers and Advanced Materials (ICSP&AM7)*, July 27-30, 2021, Tbilisi, Georgia - chairman.
- 9) *XIV Copernican Doctoral Seminar*, September 20-22, 2021, Toruń, Poland - membership in the scientific committee.
- 10) *XV Copernican Doctoral Seminar*, June 20-22, 2022, Toruń, Poland - membership in the scientific committee.
- 11) *5th Interdisciplinary Conference NaBioMat 2023 - from theory to application*, June 14-16, 2023, Toruń, Poland

5. List of project achievements

- 1) Grant NCN, Opus, UMO-2013/11/B/ST8/04444, *Interactions between collagen, hyaluronic acid, and chitosan in solution and thin films for obtaining new materials for biomedical and cosmetic applications* (principal investigator - prof. dr hab. A. Sionkowska); 2014-2017; co-investigator.
- 2) Grant NCN, Sonata, UMO-2016/21/D/ST8/01705, *New materials containing microparticles incorporated in a polymer matrix for medical, pharmaceutical, and cosmetic applications*; 2017-2022; principal investigator.
- 3) 'Grants4NCUStudents' under the 'Excellence Initiative - Research University', *The use of polymer microparticles in new cosmetic products for skin changed during anticancer treatment* (principal investigator - Weronika Prus-Walendziak), 2020-2021; project supervisor.
- 4) Grant 'Innovation Incubator UMK 4.0', *Development of a cosmetic intended for skin care of people after the removal of neoplastic lesions* (principal investigator - dr B. Kaczmarek-Szczepanska), 2020-2022; member of the scientific team; from August 2021 to March 2022 - acting principal investigator.
- 5) Grant NCBiR Tango, *Lyophilisate of glycosaminoglycans and collagen from fish skin for biomedical applications* (principal investigator - dr Beata Kaczmarek-Szczepanska), 2022-2023; co-investigator.
- 6) 'Grants4NCUStudents' under the 'Excellence Initiative - Research University', *Design of the novel eco-friendly and skincare protective mask prototype* (principal investigator - Emilia Golinska), 2021-2022; project supervisor.
- 7) 'Grants4NCUStudents' under the 'Excellence Initiative - Research University', *New degradable hydrogel SOS mask for skin problems caused by wearing protective masks*, (principal investigator - Klaudia Istal), 2022-2023; project supervisor.
- 8) Grant 'Incubator of Innovation UMK 4.0', *Development of a new ointment supporting the treatment of urinary incontinence*, 2022-2023 (principal investigator - dr Joanna Skopinska-Wisniewska); member of the scientific team.

6. Membership in international or national organizations and scientific societies

- 1) Polish Society of Biomaterials (PSB) (2014).

- 2) European Society of Biomaterials (ESB) (2022).
- 3) Polish Society of Cosmetologists Chemists (PTCK) (2022).
- 4) Polish Chitin Society (PTChit) (2022).

7. Information on internships completed in scientific institutions

- 1). Study visit, Chemical Technology Center of Catalonia (CTQC), Tarragona, Spain, 2018.09.16 - 2018.09.23.
- 2) Erasmus + STA program, Universitat Rovira i Virgili, Tarragona, Spain, 2018.09.24 - 2018.09.28.
- 3) Research internship, Engineering Department and Materials Science Institute, Lancaster University, United Kingdom (UK), 2022.11.20 - 2022.12.03 - accepted for implementation.

8. Membership in editorial committees and scientific boards of journals

- 1) Guest Editor: special issue "Polymer-Based Nano/Microparticles", Polymers, MDPI [IF=4.967; MSHE=100].
- 2) Guest Editor: special issue "Micro- and Nanoparticles in Biomedical and Cosmetic Applications", Materials, MDPI [IF=3.748; MSHE=140].
- 3) Reviewer Board, Marine Drugs, MDPI [IF=6.085; MSHE=100].

9. Information on scientific works reviewed

75 reviews of journal articles:

- Biomedicines (MDPI, IF= 4.757);
- Carbohydrate Polymers (Elsevier, IF= 10.723);
- Composites part B: Engineering (Elsevier, IF= 11.322);
- Cosmetics (MDPI);
- European Polymer Journal (Elsevier, IF=5.546);
- Fishes (MDPI, IF=3.170);
- Food and Bioprocess Technology (Springer, IF= 5.581);
- International Journal of Biological Macromolecules (Elsevier, IF= 8.025);

- International Journal of Peptide Research and Therapeutics (Springer, IF=2.191);
- Journal of Bioactive and Compatible Polymers (SAGE Journals, IF=2.137);
- Journal of Biomaterials Applications (SAGE Journals, IF=2.712);
- Journal of Cosmetic and Laser Therapy (Taylor&Francis, IF=1.982);
- Journal of Materials Research and Technology (Elsevier, IF= 6.267);
- Journal of Polymers and the Environment (Springer, IF= 4.705);
- LWT - Food Science & Technology (Elsevier, IF= 6.056);
- Marine Drugs (MDPI, IF=6.085);
- Materials (MDPI, IF= 3.748);
- Micromachines (MDPI, IF= 3.523);
- Molecules (MDPI, IF= 4.927);
- New Journal of Chemistry (The Royal Society of Chemistry, IF= 3.925);
- Pharmaceutics (MDPI, IF=6.525);
- Polymers (MDPI, IF= 4.967);
- Processes (MDPI, IF= 3.352);
- Reactive and Functional Polymers (Elsevier, IF= 4.966);
- Scientific Reports (Springer Nature, IF=4.996).

10. Information on participation in European or other international programmes

1) Supervisor at the Receiving Organisation for student - Jessica Ferreira de Souse (Université de Rennes, France) during an internship at the Faculty of Chemistry, NCU in Torun as part of the preparation of the diploma and receiving the discharge (08.04.2019 - 21.06.2019); Topic for internship: *Encapsulation of active compounds used in the cosmetic products.*

2) Supervisor at the Receiving Organisation for student - Dala Phrasavath (Polytech Nantes, France) during an internship at the Faculty of Chemistry, NCU in Torun (24.05.2021 - 23.08.2021); Program Erasmus; Topic for internship: *Natural ingredients to formulate novel cosmetics.*

3) Supervisor at the Receiving Organisation for student - Natalia Rodriguez Villegas (Universitat Rovira i Virgili, Reus, Spain), during an internship at the Faculty of Chemistry, NCU in Torun (28.06.2021 - 25.07.2021); Program: TSSP NatSci - Toruń Students Summer

Program in Natural Sciences; Topic for internship: *Microencapsulation techniques of herbal compounds for raw materials in cosmetics and pharmaceuticals.*

4) Supervisor at the Receiving Organisation for student - Bahman Diarra (Polytech Nantes, France) during an internship at the Faculty of Chemistry, NCU in Torun (30.05.2022 - 26.08.2022); Program Erasmus; Topic for internship: *Technology and analysis of semisolid preparations and cosmetics.*

5) Supervisor at the Receiving Organisation for student - Dania Hallaq (German Jordanian University, Jordan) during an internship at the Faculty of Chemistry, NCU in Torun (May-July 2022); Program Erasmus; Topic for internship: *Application of membrane technologies in the nano-encapsulation process.*

6) Supervisor at the Receiving Organisation for student - Joana Cordeiro Torcato (NOVA School of Science and Technology Lisbon, Portugal) during an internship at the Faculty of Chemistry, NCU in Torun (03.07.2022 – 30.07.2022); Program: TSSP NatSci - Toruń Students Summer Program in Natural Sciences, Topic for internship: *Encapsulation of active ingredients for topical application.*

11. Information on participation in research teams realizing projects other than those defined in section II. b) 5.

1) Leader of the IPM Team (Interdisciplinary Innovation in Personalized Medicine Team) awarded in the competition for priority research teams of Nicolaus Copernicus University under the project ‘The Excellence Initiative - Research University’ (April 4, 2019).

On January 11, 2019, the competition ‘Priority Research Teams of the Nicolaus Copernicus University’ was announced, addressed to employees of the Nicolaus Copernicus University who have demonstrated significant, documented scientific activity. On April 4, 2019, 16 priority teams were awarded, including the IPM Team, of which I am one of the leaders. The interdisciplinary team consists of scientists from the Faculty of Chemistry of the Nicolaus Copernicus University in Toruń (leader dr J. Kozłowska), the Faculty of Pharmacy of Collegium Medicum in Bydgoszcz (leader dr B. Bojko, prof. UMK) and the Faculty of Medicine of Collegium Medicum in Bydgoszcz (leader dr M. Maj, prof. UMK).

2) Member of the Centre of Excellence “Towards Personalized Medicine” at NCU (from 2020).

Due to the NCU obtaining the status of a research university in the first competition of the Ministry of Science and Higher Education ‘The Excellence Initiative - Research University’ the IPM Team became part of the Centre of Excellence ‘Towards Personalized Medicine’ at NCU. Researchers at the Center focus on searching for new biomarkers of disease, developing new therapeutic strategies, and regenerative medicine.

12. Information on membership in the teams assessing applications for financing of research projects, applications for scientific awards, applications in other competitions of scientific or didactic character

1) Member of the competition committee assessing projects submitted in the second edition of the ‘Grants4NCUStudents’ under the ‘Excellence Initiative - Research University’, which aims to support scientific initiatives of students and doctoral students in line with the goals of the Nicolaus Copernicus University as a research university; a content reviewer in the field of natural and technical sciences (ST), 2021.

2) Member of the committee in the competition for the best oral presentation and the best poster, 7th International Caucasian Symposium on Polymers and Advanced Materials (ICSP&AM7), July 27-30, 2021, Tbilisi, Georgia.

III. INFORMATION ON COOPERATION WITH SOCIAL AND ECONOMIC ENVIRONMENT

a) THE PERIOD PRIOR TO THE AWARD OF THE PhD DEGREE

- 1) Internship at *Scienceventure Joanna Rybka* under the project ‘Internship with the Success of a Scientist - 2nd edition’ (project implemented in the Kuyavian-Pomeranian Voivodeship from the European Union funds under the European Social Fund, Priority VIII: Regional staff of the economy, Measure 8.2 Transfer of knowledge, Sub-measure 8.2.1 Support for cooperation in the sphere of science and enterprises), 02.10.2012 – 30.04.2013.
- 2) Internship at *Scienceventure Joanna Rybka* under the project ‘Internship with the Success of a Scientist’, 3rd edition", 03.02.2014 – 31.07.2014.
- 3) Cooperation with *D&R Dispersions and Resins Ltd.*

b) THE PERIOD BETWEEN THE CONFERMENT OF THE PhD DEGREE AND THE AWARD OF THE POST-DOCTORAL DEGREE OF DOCTOR HABILITATED

- 1) Cooperation with the company *Kosmetyki DLA Ltd.* - manufacturer of cosmetics based on fresh herbal infusions.
- 2) Cooperation with *Micro Capsules Factory - APRS division Ltd.* – offering and implementing innovative drying, encapsulating, and microencapsulation techniques.
- 3) Establishing a spin-off company - *NatChemLab Ltd.* - the company specializes in developing recipes for cosmetic preparations and medical devices and hygiene and deals with implementation research in cosmetic, household, and material chemistry (business associate).

IV. SCIENTOMETRIC INFORMATION

Achievement	Before PhD	After PhD	Total
Publications with IF	11	26	37
Publications without IF, with MSHE	10	2	12
Other peer-reviewed publications	2	0	2
Total	23	28	51
Corresponding author	4	19	23
First author	3	14	17
Chapters in monographs	0	6	6
IMPACT FACTOR*	26.64	104.16	130.8
MSHE*	320	2407	2727
Citations**	832		
Citations - without self-citations**	781		
Hirsch index**	15		
Patents	0	2	2
Invited lectures	1	4	5
Authorship / co-authorship of oral presentations at scientific conferences	4	35	39
Authorship / co-authorship of posters at scientific conferences	52	62	114
Research projects - principal investigator	4	1	5
Research projects - co-investigator; member of the scientific team; research supervisor	0	8	8

* according to the year of publication

** according to the Web of Science Core Collection (27/10/2022)

Justyna Kozłowska