

## Prof. BİRNER AKKAYA

### Personal Information

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**Web:** <https://avesis.cumhuriyet.edu.tr/bakkaya>

### International Researcher IDs

ScholarID: nKd360AAAAJ

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Publons / Web Of Science ResearcherID: AAZ-2285-2021

ScopusID: 15130583200

Yoksis Researcher ID: 55641

### Biography

Prof. Dr. AKKAYA was born on 10.11.1978 in Antwerpen, Belgium. She studied primary school in Antwerpen. She later returned to Turkey with her family and continued her education in Sivas. She was accepted to Hacettepe (100% English) Chemistry Department in 1997 and graduated in 2002. She completed her master's degree and doctorate between 2003-2009. She completed her master's and doctoral programs under the joint Biochemistry program and supervision of Hacettepe University (Prof. Dr. Adil Denizli) and Sivas Cumhuriyet University (Prof. Dr. Ferda Candan).

Prof. Akkaya, started her academic career as a Research Assistant in the Department of Biochemistry in 2002. Dr. Akkaya has been continuing her academic studies as a Lecturer (Prof. Dr.) at Cumhuriyet University, Faculty of Science, Department of Molecular Biology and Genetics since 2010. Between 2016 and 2017, She conducted post-doc research at Case Western Reserve University in Cleveland/Ohio, USA, with a TÜBİTAK scholarship. She was deemed worthy of the International Award (Federation Of American Societies For Experimental Biology -The 2017 BioArt Winners) for her work here. She works as an independent expert in the National Agency of the European Union. She worked as a manager and researcher in around 30 projects, mainly supported by the European Union, TÜBİTAK and the University. There are a total of 9 book studies, including 5 books and 4 book chapters. She has approximately 60 international and national articles. Birnur AKKAYA works as an editor and referee in various scientific and professional journals. She received a patent from the Turkish Trademark and Patent Office for the molecule she synthesized to prevent cancer-type diseases.

Prof. Dr. AKKAYA works voluntarily and gives seminars in many foundations and associations within the scope of social responsibility. On March 8, International Women's Day, she received an award certificate and attended the conference within the scope of "Difference-Making Women of Sivas" organized by Sivas Governorship. She gave a conference in partnership with Kadem Sivas branch and Sivas Science and Technology University. She works as a popular science columnist on the website Academic Reason (<https://www.akademikakil.com/author/birnurakkaya/>). She is also the founding president of the Association of Women in Science and is still the chairman of the board. English and Dutch are among the languages she uses at an advanced level. She is married and the mother of three sons. Study topics are summarized below.

**Biochemistry:** Cancer, Locking the release process of Cancer Cells, Removal of Toxic Substances (bilirubin, pathogenic antibodies, metal ions such as cholesterol, iron and cadmium) from Blood - Organ Systems, Interactions of enzymes and proteins with polymeric surfaces, Preparation of polymer-based biospecific sorbents, Enzyme and protein purification (Bioaffinity chromatography, hydrophobic chromatography, membrane affinity chromatography, immobilized metal

chelate affinity chromatography)

**Biomaterials:** Production of polymeric biomaterials, characterization of surface and bulk structures, modifications by chemical and biological methods.

**Controlled Drug Release Technology:** Controlled anti-cancer drug release from polymeric matrices, Mathematical models in controlled release systems.

**Environmental Technology:** Toxicity limits in industrial wastewater, removal of heavy metals from wastewater through polymeric particle adsorption and mathematical modeling, environmental management systems.

**Membrane Technology:** Preparation of porous membranes, enzyme immobilization, use of membranes in the removal of heavy metals from environmental waters.

**Polymer Technologies:** Production of polymers with different shapes and geometries and applications of these polymers in medicine and biology.

**Tissue engineering:** Plasma polymerization, immobilization of metastasized cells on chemically and biologically modified polymeric composite surfaces.

## Education Information

Post Doctorate, Case Western Reserve University, Department of Mechanical and Aerospace Engineering, Case Comprehensive Cancer Center, United States Of America 2016 - 2017

Doctorate, Sivas Cumhuriyet University, Turkey 2005 - 2009

Postgraduate, Sivas Cumhuriyet University, Turkey 2003 - 2005

Undergraduate, Hacettepe University, Fen Fakültesi, Kimya Bölümü, Turkey 1997 - 2002

## Foreign Languages

Arabic, A1 Beginner

German, B1 Intermediate

English, C2 Mastery

Dutch, C1 Advanced

## Certificates, Courses and Trainings

Health&Medicine, International Interdisciplinary Congress of Women in Science - (Uluslararası Disiplinlerarası Kadın Akademisyenler Kongresi), International Interdisciplinary Congress of Women in Science Uluslararası Disiplinlerarası Kadın Akademisyenler Kongresi, 2023

Education Management and Planning, Eğiticilerin Eğitimi Eğitimi Sertifikası, Training of Trainers Training Certificate, 2018

Health&Medicine, Deney Hayvanları Kullanım Sertifikası, Sivas Cumhuriyet University, 2016

Health&Medicine, TÜBİTAK Post doc, TÜBİTAK Post doc, 2016

Health&Medicine, Protein purification and proteomics course, Protein purification and proteomics course, 2014

Health&Medicine, "Intensive Course on Novel Separation Techniques in Biotechnology", Intensive Course on Novel Separation Techniques in Biotechnology, 2006

## Dissertations

Doctorate, Antibody purification by lectin affinity chromatography, Sivas Cumhuriyet University, Fen Bilimleri Enstitüsü, Fen Bilimleri Enstitüsü, 2009

Postgraduate, Preparation of magnetic metal chelate affinity sorbents for cytochrome C adsorption, Sivas Cumhuriyet University, Fen Bilimleri Enstitüsü, Fen Bilimleri Enstitüsü, 2005

## Research Areas

Molecular Biology and Genetics, Chemistry, Biochemistry, Fundamental Medical Sciences, Biochemistry

## Academic Titles / Tasks

Professor, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2019 - Continues

Associate Professor, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2014 - 2019

Associate Professor, Case Western Reserve University, 2016 - 2017

Assistant Professor, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2010 - 2014

Research Assistant PhD, Sivas Cumhuriyet University, Fen Fakültesi, Biyokimya Bölümü, 2009 - 2010

Research Assistant, Sivas Cumhuriyet University, Fen Fakültesi, Biyokimya Bölümü, 2002 - 2009

## Academic and Administrative Experience

Fakülte Kurulu Üyesi, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2019 - 2019

Head of Department, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2019 - 2019

BAP Scientific Commissioner, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2019 - 2019

Deputy Head of Department, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, 2019 - 2019

## Courses

Ligand interactions of proteins, Application and Analytical Methods, Doctorate, 2021 - 2022

Protein Ligand Interactions, Postgraduate, 2021 - 2022

Finishing thesis, Undergraduate, 2019 - 2020

Seminar Lesson, Postgraduate, 2019 - 2020

Enzymatic Analysis - II Lab., Undergraduate, 2018 - 2019

Protein Ligand Interactions: Application and Analytical Methods, Postgraduate, 2019 - 2020

Specialized Field Course, Doctorate, 2019 - 2020

Teaching Practice, Undergraduate, 2018 - 2019

Biochemistry I, Undergraduate, 2019 - 2020

Enzymatic Analysis - II, Undergraduate, 2018 - 2019

Protein Purification Techniques, Undergraduate, 2018 - 2019

Enzymatic Analysis - I Lab, Undergraduate, 2018 - 2019

Enzymatic Analysis - I, Undergraduate, 2018 - 2019

Affinity Techniques, Undergraduate, 2015 - 2016

Seminar Lesson, Doctorate, 2015 - 2016

Specialized Field Course, Postgraduate, 2014 - 2015

Biotransformation II, Undergraduate, 2010 - 2011

## Advising Theses

Akkaya B., Investigation of the Effect of Low Molecular Weight Heparin, Enoxaparin, on Pentylentetrazol (PTZ)-Induced Neuronal Damage in C-6 and HT-22 Cell Lines, Postgraduate, B.NUR(Student), 2025

Akkaya B., Preparation, Chemical and Biological Characterization of Magnetic and Hydrophobic Modified Heparin-Like Derivative, Postgraduate, N.SARIAYDIN(Student), 2024

Akkaya B., In vitro investigation of cisplatin release from magnetic nanoparticles under magnetic field, Postgraduate, A.NAZLIM(Student), 2022

Akkaya B., Obtaining new chitosan modified products and determining their biological activities, Doctorate, S.KOCABAY(Student), 2020

Akkaya B., Production, isolation and characterization of extracellular amylase from stool bacteria, Postgraduate, S.KOCABAY(Student), 2015

Akkaya B., Production, purification and partial characterization of protease from a yeast isolate, Postgraduate, S.YAVUZ(Student), 2013

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Investigation of inhibitory effect of sulfated chitosan oligomer on human heparanase enzyme: in silico and in vitro studies**  
KOCABAY S., ALAGÖZ M. A., AKKAYA B.  
Journal of Biomolecular Structure and Dynamics, 2024 (SCI-Expanded)
- II. **Synthesis, Characterization, and Investigation of Doxorubicin Drug Release Properties of Poly(acrylamide-co-acrylic Acid/Maleic Acid)- Hydroxyapatite Composite Hydrogel.**  
Akkaya B., Akkaya R.  
Medicinal chemistry (Shariqah (United Arab Emirates)), vol.20, pp.537-545, 2024 (SCI-Expanded)
- III. **Preparation and characterization of lysozyme loaded cryogel for heavy metal removal**  
AKKAYA B.  
International Journal of Biological Macromolecules, vol.253, 2023 (SCI-Expanded)
- IV. **Magnetic chitosan oligomer-sulfonate-stearic acid triple combination as cisplatin carrier for site-specific targeted on MCF-7 cancer cells: Preparation, characterization and in vitro experiments**  
AKKAYA B., AKKAYA R., Nazlim A.  
Chemical Biology and Drug Design, vol.102, no.4, pp.692-706, 2023 (SCI-Expanded)
- V. **Antimicrobially effective protein-loaded metal chelated chitosan composite**  
AKKAYA B., AKKAYA R., Taşkın Kafa A. H.  
Journal of Polymer Engineering, vol.43, no.8, pp.748-758, 2023 (SCI-Expanded)
- VI. **Chitosan-poly(acrylamide-co-maleic acid) composite synthesis, characterization, and investigation of protein adsorption behavior**  
Akkaya R., Akkaya B., Taşkın Çakıcı G.  
POLYMER BULLETIN, vol.80, no.4, pp.4153-4168, 2023 (SCI-Expanded)
- VII. **Doxorubicin loaded pH-responsive chitosan-poly(acrylamide-maleic acid) composite hydrogel for anticancer targeting**  
AKKAYA B., AKKAYA R., Celikkaya S. I., Sariaydin N., Raheem K. Y.  
Journal of Molecular Structure, vol.1274, 2023 (SCI-Expanded)
- VIII. **Molecular docking to investigate the inhibitory activity and the role of nitric oxide in anticonvulsant effects of vitamin D on pentylentetrazole-induced epileptic seizures in rats**  
AKKAYA R., AKKAYA B., Bello R. O.  
Journal of Molecular Structure, vol.1273, 2023 (SCI-Expanded)
- IX. **Chemical and biological characterization of sulfated chitosan oligomer as heparin mimics**  
Kocabay S., Bahar M. R., TEKİN S., AKKAYA R., AKKAYA B.  
POLYMERS & POLYMER COMPOSITES, vol.29, no.9\_suppl, 2021 (SCI-Expanded)

- X. **Preparation of sulfatide mimicking oleic acid sulfated chitosan as a potential inhibitor for metastasis**  
Kocabay S., AKKAYA B.  
INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, vol.147, pp.792-798, 2020 (SCI-Expanded)
- XI. **Mercury leads to abnormal red blood cell adhesion to laminin mediated by membrane sulfatides**  
AKKAYA B., Kucukal E., Little J. A., Gurkan U. A.  
BIOCHIMICA ET BIOPHYSICA ACTA-BIOMEMBRANES, vol.1861, no.6, pp.1162-1171, 2019 (SCI-Expanded)
- XII. **Production, purification, and characterization of metalloprotease from Candida kefyr 41 PSB**  
Yavuz S., KOCABAY S., ÇETİNKAYA S., AKKAYA B., AKKAYA R., YENİDÜNYA A. F., BAKICI M. Z.  
INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, vol.94, pp.106-113, 2017 (SCI-Expanded)
- XIII. **Characterization of thermostable beta-amylase isozymes from Lactobacillus fermentum**  
KOCABAY S., ÇETİNKAYA S., AKKAYA B., YENİDÜNYA A. F.  
INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, vol.93, pp.195-202, 2016 (SCI-Expanded)
- XIV. **Selective and single step adsorption of  $\alpha$ -lactalbumin from whole cow's milk on hydroxyapatite microbeads**  
ÇETİNKAYA S., AKKAYA B.  
MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS, vol.68, pp.573-578, 2016 (SCI-Expanded)
- XV. **Porous and spherical hydroxyapatite microcomposites for immunoglobulin G adsorption**  
Akkaya B.  
JOURNAL OF APPLIED POLYMER SCIENCE, vol.130, no.4, pp.2764-2771, 2013 (SCI-Expanded)
- XVI. **Separation of lysozyme with magnetically stabilized spherical hydroxyapatite microcomposites in a continuous flow system**  
Akkaya B.  
JOURNAL OF APPLIED POLYMER SCIENCE, vol.130, no.3, pp.1602-1610, 2013 (SCI-Expanded)
- XVII. **New low-cost composite adsorbent synthesis and characterization**  
AKKAYA R., AKKAYA B.  
DESALINATION AND WATER TREATMENT, vol.51, pp.3497-3504, 2013 (SCI-Expanded)
- XVIII. **Adsorption isotherms, kinetics, thermodynamics and desorption studies for uranium and thorium ions from aqueous solution by novel microporous composite P(HEMA-EP)**  
AKKAYA R., AKKAYA B.  
JOURNAL OF NUCLEAR MATERIALS, vol.434, pp.328-333, 2013 (SCI-Expanded)
- XIX. **Concanavalin a immobilized magnetic poly(glycidyl methacrylate) beads for antibody purification**  
AKKAYA B., Yavuz H., CANDAN F., DENİZLİ A.  
JOURNAL OF APPLIED POLYMER SCIENCE, vol.125, no.3, pp.1867-1874, 2012 (SCI-Expanded)
- XX. **Production and immobilization of a novel thermoalkalophilic extracellular amylase from bacilli isolate**  
AKKAYA B., YENİDÜNYA A. F., AKKAYA R.  
INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, vol.50, no.4, pp.991-995, 2012 (SCI-Expanded)
- XXI. **IgG purification by bentonite-acrylamide-histidine microcomposite**  
Akkaya B.  
COLLOIDS AND SURFACES B-BIOINTERFACES, vol.92, pp.151-155, 2012 (SCI-Expanded)
- XXII. **Bentonite-acrylamide-histidine-Cu(II) Microcomposite for Cytochrome c Adsorption**  
AKKAYA B., AKKAYA R.  
POLYMERS & POLYMER COMPOSITES, vol.20, no.9, pp.829-835, 2012 (SCI-Expanded)
- XXIII. **Properties of an extracellular lipase from a traditional yoghurt yeast**  
AKKAYA B., YENİDÜNYA A. F.  
TURKISH JOURNAL OF BIOCHEMISTRY-TURK BIYOKIMYA DERGISI, vol.37, no.1, pp.62-67, 2012 (SCI-Expanded)
- XXIV. **A Crosslinked Carboxylic Acid Containing Cation Exchange Monolithic Cryogel for Human Serum Albumin Separation**  
AKKAYA B., AKKAYA R.  
JOURNAL OF MACROMOLECULAR SCIENCE PART A-PURE AND APPLIED CHEMISTRY, vol.49, no.9, pp.736-743,

- 2012 (SCI-Expanded)
- XXV. **Cross-Linked Bentonite-Acrylamide-histidine-Based Metal-Chelate Affinity Microcomposites for Lysozyme Separation From Egg White**  
AKKAYA B., AKKAYA R.  
SEPARATION SCIENCE AND TECHNOLOGY, vol.48, no.2, pp.272-280, 2012 (SCI-Expanded)
- XXVI. **Concanavalin a Immobilized Monosize and Magnetic Poly(glycidyl Methacrylate) Beads for Use in Yeast Invertase Adsorption**  
AKKAYA B., UZUN L., Altintas E. B., CANDAN F., DENİZLİ A.  
JOURNAL OF MACROMOLECULAR SCIENCE PART A-PURE AND APPLIED CHEMISTRY, vol.46, no.3, pp.232-239, 2009 (SCI-Expanded)
- XXVII. **N-methacryloyl-(L)-histidine methyl ester carrying porous magnetic beads for metal chelate adsorption of cytochrome c**  
Akkaya B., Uzun L., Candan F., Denizli A.  
MATERIALS SCIENCE & ENGINEERING C-BIOMIMETIC AND SUPRAMOLECULAR SYSTEMS, vol.27, no.1, pp.180-187, 2007 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Drug delivery behavior of magnetic composite: In vitro study**  
Akkaya B., Yerliyurt B. N.  
BANGLADESH JOURNAL OF MEDICAL SCIENCE, vol.23, no.3, pp.666-675, 2024 (ESCI)
- II. **In Silico Studies of Synthetic Sulfatide as a Potential Drug Candidate Against Covid-19**  
KOCABAY S., ALAGÖZ M. A., BAKIR H. G., AKKAYA B.  
CUMHURİYET SCIENCE JOURNAL, vol.43, no.2, pp.238-245, 2022 (Peer-Reviewed Journal)
- III. **Cytochrome c adsorption in a continuous flow system by using Cu(II)-chelated magnetic affinity particles**  
AKKAYA R., AKKAYA B.  
BANGLADESH JOURNAL OF MEDICAL SCIENCE, vol.20, no.1, pp.159-163, 2021 (ESCI)
- IV. **Modification by natural sources to reduce immuno-reactivity of milk proteins**  
AKKAYA R., AKKAYA B., ÇETİNKAYA S.  
CUMHURİYET SCIENCE JOURNAL, vol.41, no.1, pp.235-238, 2020 (Peer-Reviewed Journal)
- V. **Wi-Fi decreases melatonin protective effect and increases hippocampal neuronal damage in pentylenetetrazole induced model seizures in rats**  
AKKAYA R., Gümüş E., AKKAYA B., KARABULUT S., Gülmez K., KARADEMİR M., TAŞTEMUR Y., Taşkıran A. Ş.  
Pathophysiology, 2019 (Scopus)
- VI. **Neuroprotective effect of astaxanthin (ATX) against cognitive impairment on PTZ-induced epileptic seizures in rats and against PTZ-induced neurotoxicity in SH-SY5Y human neuroblastoma cell culture**  
KARADEMİR M., GÜMÜŞ E., TAŞTEMUR Y., ERGÜL M., ERGÜL M., KARABULUT S., AKKAYA R., AKKAYA B., TAŞKIRAN A. Ş.  
Cumhuriyet Tıp Dergisi (ELEKTRONİK), vol.41, no.1, pp.212-222, 2019 (Peer-Reviewed Journal)
- VII. **New Composite, Poly(Hydroxyethylmethacrylate-Expanded Perlite), for Single step Separation of Egg White Lysozyme**  
AKKAYA B., AKKAYA R.  
Cumhuriyet Science Journal, vol.39, no.3, pp.694-702, 2018 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Academic Analysis in the Field of Biophysics and Physiology**  
Akkaya B. (Editor)

YAZ Yayınları, Afyonkarahisar, 2024

- II. **Yaşlanmayı Açıklayan Biyolojik Mekanizmaların En Önemlisi; Serbest Radikal Teorisi**  
AKKAYA B., AKKAYA R.  
in: Fizyoterapide güncel yaklaşımlar, AKKAYA RECEP, Editor, BİDGE Yayınları, Ankara, pp.155-163, 2024
- III. **Kanser Hücrelerinin Biyofiziksel Açından Değerlendirilmesi**  
AKKAYA R., AKKAYA B.  
in: Biyofiziksel Bakış Açısından Kanser, AKKAYA RECEP, Editor, BİDGE Yayınları, Ankara, pp.65-77, 2024
- IV. **Medical-Biochemistry**  
Ayan D., Gül H. F., Akkaya B. (Editor)  
BİDGE Yayınları (BIDGE Publications), Ankara, 2023
- V. **Current Debates on Health Sciences 4**  
Akkaya B. (Editor), Akkaya R. (Editor)  
Bilgin Kültür Sanat Yayınları (Bilgin Culture and Art Publications), Ankara, 2022
- VI. **Current Debates in Health Sciences 5**  
Akkaya R. (Editor), Akkaya B. (Editor)  
Bilgin Kültür Sanat Yayınları (Bilgin Culture and Art Publications), Ankara, 2022
- VII. **Current Debates in Health Sciences 6**  
Akkaya B. (Editor), Akkaya R. (Editor)  
Bilgin Kültür Sanat Yayınları (Bilgin Culture and Art Publications), Ankara, 2022
- VIII. **Examining the Effect of Magnetic Field on Cancer Cells from a Biochemical and Biophysical Perspective**  
Akkaya B., Akkaya R.  
in: Current Pharmacotherapeutic Studies in Different Scientific Fields, Doç. Dr. Fikriye Yasemin ÖZATİK, Doç. Dr. Orhan ÖZATİK, Editor, İksad Yayınevi, Ankara, pp.97-112, 2022
- IX. **Biophysical Perspective on REM Sleep Deprivation and Epileptic Seizures**  
Akkaya B., Akkaya R.  
in: New Insights in Disease Mechanisms, Doç. Dr. Fikriye Yasemin ÖZATİK Doç. Dr. Orhan ÖZATİK, Editor, İksad Yayınevi, Ankara, pp.19-30, 2022
- X. **Enzymatic Overview**  
Akkaya B., Akkaya R.  
in: Current Biochemistry Studies II, Doğan YÜCEL, Editor, Akademisyen Yayınevi A.Ş. (Academician Publishing House), Ankara, pp.31-49, 2021
- XI. **The Relationship Between Vitamin D and Epilepsy**  
Akkaya R., Akkaya B.  
in: Current Physiology-Histology-Embryology Studies II, Mümin Alper ERDOĞAN, Editor, Akademisyen Yayınevi (Academician Publishing House), Ankara, pp.117-125, 2021

## **Refereed Congress / Symposium Publications in Proceedings**

- I. **Characterization of Doxorubicin Loaded Hydroxyapatite Powder**  
Akkaya B., Akkaya R., Yerliyurt B. N.  
International Interdisciplinary Congress of Women In Science-II, Sivas, Turkey, 26 - 28 April 2024, vol.1, pp.162-169
- II. **Investigation of The Cytotoxic Effect of Magnetic Alginate Derivative on C-6 and MCF-7 Cell Line in The Presence of Magnetic Field**  
Sarıaydın N., Akkaya B., Akkaya R.  
INTERNATIONAL INTERDISCIPLINARY CONGRESS OF WOMEN IN SCIENCE, Sivas, Turkey, 26 - 28 April 2024, vol.1, pp.340-350
- III. **Detection of Heparanase Enzyme Activity with the Colorimetric Assays**  
Kocabay S., Akkaya B.

6th International Eurasian Conference on Biological and Chemical Sciences, Ankara, Turkey, 11 - 13 October 2023, pp.52-53

- IV. **Preparation Of Dye-Binding Albumin Printed Hydrogels From Human Serum For Rapid Qualitative Analysis**  
Akkaya B., Sariaydin N.  
INTERNATIONAL INTERDISCIPLINARY CONGRESS OF WOMEN IN SCIENCE, Sivas, Turkey, 6 - 10 January 2023, vol.1, pp.3-11
- V. **Investigation Of The Binding Properties Of Vitexin-Glucanase And Metformin-Glucanase Complex In The Glucose Processing Enzyme Family**  
Kocabay S., Çelikkaya S. I., Akkaya B.  
INTERNATIONAL INTERDISCIPLINARY CONGRESS OF WOMEN IN SCIENCE, Sivas, Turkey, 13 January 2023, pp.384-385
- VI. **GLYCOSAMINOGLYCANS: BIOMIMETIC MATERIALS**  
AKKAYA B.  
1st International Karatekin Science and Technology Conference, Çankırı, Turkey, 01 September 2022
- VII. **New Heparin Mimetic Material And Its Anticancer Activity**  
AKKAYA B., AKKAYA R.  
Biohealth Congress, Afyon, Turkey, 24 February 2022, pp.1-5
- VIII. **MEDICAL AND BIOTECHNOLOGY APPLICATIONS OF MAGNETIC BIODEGRADABLE MATERIALS**  
AKKAYA B.  
INTERNATIONAL CONFERENCE ON MULTIDISCIPLINARY STUDIES, Ankara, Turkey, 20 September 2021, vol.1
- IX. **Use of Heparin-Like Biodegradable Materials in the Medical Field**  
Akkaya B.  
7th International Hippocrates Congress on Medical and Health Sciences a, Ankara, Turkey, 03 September 2021, vol.1, pp.205-206
- X. **Purification of Yeast Metalloprotease by Affinity Chromatography**  
Akkaya B., Yenidünya A. F., Akkaya R.  
IV. Ulusal Afinitive Teknikleri Kongresi konferansı (IV. National Affinity Techniques Congress conference), Konya, Turkey, 23 - 27 June 2014
- XI. **Spectrophotometric Determination and Extraction of Chlorpromazine From Environmental and Pharmaceutical Samples**  
ALTUNAY N., AKKAYA R., AKKAYA B.  
International Eurasian Congress on Natural Nutrition Healthy Life, Ankara, Turkey, 12 - 15 July 2018, pp.959-965
- XII. **Organic Solvent Tolerant B-Amylase From Lactobacillus Fermentum**  
KOCABAY S., AKKAYA B., YENİDÜNYA A. F., ÇETİNKAYA S.  
4th International Türk-Pak Conference Chemical Sciences (ITPCCS 2017), 26 - 28 October 2017
- XIII. **Screening Of Potential Probiotic Properties Of Lactobacillus Fermentum Isolated From Newborn Baby Gaita**  
KOCABAY S., ÇETİNKAYA S., AKKAYA B., YENİDÜNYA A. F.  
8th International Advanced Technologies Symposium, 19 - 21 October 2017
- XIV. **Genotypic and Phenotypic Characterization of Bacteria in Infant Stools**  
Akkaya B., Kocabay S., Yenidünya A. F.  
3. Ulusal Klinik Mikrobiyoloji Kongresi, İstanbul, Turkey, 18 - 22 November 2015
- XV. **Purification of Lactalbumin from Cow Milk Using Hydroxyapatite Particles**  
Çetinkaya S., Akkaya B.  
UYGULAMALI BİYOKİMYADA GÜNCEL KONULAR- 2, Ankara, Turkey, 20 - 23 August 2015
- XVI. **Adsorption Of Heavy Metal Ions In Tattoos Ink By Modified Bentonite Clay**  
AKKAYA B., AKKAYA R.  
International 2nd European Congress on Tatto and Pigment Research, Brugge/Belgium, Belgium, 28 - 30 April 2015
- XVII. **Characterization of Enzyme Produced Isolates From Fecal Samples**



AKKAYA B., ÇETİNKAYA S., YENİDÜNYA A. F.

3rd International Congress of Molecular Biology and Biotechnology, 2 - 06 June 2014

**XVIII. N Isopropyl Acrylamide Acrylic acid Monolithic Cryogel Columns**

Akkaya B., Akkaya R.

Kromatografi Kongresi (Chromatography Congress), Ankara, Turkey, 4 - 07 July 2011

**XIX. Production and Immobilization of a Novel hyper thermoalkalophilic extracellular amylase**

AKKAYA B., YENİDÜNYA A. F.

International Conference on Enzyme Science and Technology, ICEST 2011, 13 - 17 June 2011

**XX. Investigation of Adsorption and Kinetics of Concanavalin A to Immobilized Equidimensional Microspheres**

Akkaya B., Uzun L., Candan F., Denizli A.

VIII Kromatografi Kongresi, Ankara, Turkey, 9 - 11 June 2008

**XXI. Preparation of Magnetic Metal Chelate Affinity Sorbents for Cytochrome c Adsorption**

Akkaya B., Candan F.

1. Ulusal Afinitive Teknikleri Kongresi, Ankara, Turkey, 13 - 16 June 2005

**XXII. Antioxidant Properties of Red and Black Radish**

Candan F., Şahin S., Akkaya B., Dönmez E.

XVII. Ulusal Kimya Kongresi, İstanbul, Turkey, 18 - 21 September 2003

## Other Publications

**I. Synthesis & Characterization: Doxorubicin Drug Release from Composite Hydrogel | Bentham Science**

Akkaya B.

Presentation, pp.1-3, 2024

## Supported Projects

Bulut Atalay E., Akkaya B., Project Supported by Higher Education Institutions, Synthesis and characterization of Chitosan-Histidine-Copper complex and investigation of its effects on proliferation and migration of glioma cells, 2023 - 2024

Akkaya B., Şahin A., Kapançık S., Akkaya R., Project Supported by Higher Education Institutions, Investigation of Apoptosis of Alginate And Its Derivatives In Breast Cancer (Cell Line), 2023 - 2024

Akkaya B., Akkaya R., Kapançık S., Şahin A., Project Supported by Higher Education Institutions, Determination of Enzyme Levels Involved in Polyamine Synthesis in Pulmonary Hypertension Patients, 2023 - 2024

Akkaya B., Akkaya R., Sarıaydın N., Project Supported by Higher Education Institutions, Preparation, chemical and biological characterization of magnetic and hydrophobic modified heparin derivative, 2022 - 2024

Akkaya B., TUBITAK Project, In vitro investigation of drug transfer of pH-sensitive composite to multidrug-resistant cancer cell line in the presence of magnetic field, 2023 - 2023

Akkaya B., Akkaya R., Nazlım A., Project Supported by Higher Education Institutions, In Vitro Investigation of Cisplatin Release from Magnetic Nanoparticles Under Magnetic Field, 2022 - 2023

Kocabay S., Alagöz M. A., Akkaya B., TUBITAK Project, Experimental and In Silico Investigation of the Potential of Some Miswak (Salvadora Persica) Components as Glucanase Inhibitors, 2022 - 2023

Sarıaydın N., Akkaya R., Nazlım A., Akkaya B., Project Supported by Higher Education Institutions, Synthesis and characterization of chitosan-poly(acrylamide-maleic acid) composite and study of lysozyme adsorption from aqueous solution, 2022 - 2023

Akkaya B., Lay L., FP6 Project, CA18103 -Innovation with Glycans: new frontiers from synthesis to new biological targets, 2021 - 2022

İçen Taşkın I., Akkaya B., Kocabay S., Project Supported by Higher Education Institutions, Mimicry of sulfatide ligands

against selectin molecules: fucoidan-lauric acid complex, 2021 - 2022

Akkaya R., Akkaya B., Taşkıran A. Ş., Gümüş E., Project Supported by Higher Education Institutions, The Effect of Vitamin D3 (1,25-(OH)2D3) on Epileptic Seizures in Rats Induced with Experimental Epilepsy with Pentylentetrazol and the Role of the Nitric Oxide Pathway in This Effect, 2018 - 2020

Kocabay S., Akkaya B., Project Supported by Higher Education Institutions, Obtaining New Chitosan Modified Products And Determining Their Biological Activities, 2018 - 2020

Akkaya B., Karademir M., Güneş H., Akkaya R., Project Supported by Other Private Institutions, The effect of Mecsina hemostopper on sciatic nerve healing, 2018 - 2019

Karademir M., Taşkıran A. Ş., Akkaya B., Akkaya R., Project Supported by Other Private Institutions, Effects of Astaxin on peripheral nerve damage in rats., 2018 - 2019

Akkaya B., Akkaya R., Project Supported by Higher Education Institutions, Radioactive metal adsorption to poly acrylamide co acrylic acid composite, 2018 - 2019

Akkaya B., Gümüş E., Taşkıran A. Ş., Akkaya R., Project Supported by Higher Education Institutions, Effect of melatonin on pentylentetrazol-induced epileptic seizures in rats during Wi-Fi exposure., 2018 - 2019

Gurkan U. A., Akkaya B., TUBITAK Project, Interaction of inorganic mercury salts with erythrocyte membrane sulfatide and effect of adhesion to endothelium, 2017 - 2018

Akkaya B., TUBITAK Project, Investigation of The Effect of Amylase on Bread Quality, 2016 - 2016

Akkaya B., Akkaya R., Project Supported by Higher Education Institutions, Composite Synthesis and Adsorption Applications, 2015 - 2016

Kocabay S., Akkaya B., Project Supported by Higher Education Institutions, Characterization of Hydroxyapatite Synthesis in Spherical Form and Its Use in Purification of Biomolecules, 2015 - 2016

Akkaya B., Akkaya R., Project Supported by Higher Education Institutions, Isolation of Lactobacillus producing Lipase enzyme from traditional yoghurt samples, 2015 - 2016

Akkaya B., Project Supported by Higher Education Institutions, Synthesis and Characterization of Arginine-Modified Spherical Form Hydroxyapatite, 2014 - 2015

Akkaya B., Project Supported by Higher Education Institutions, Isolation and characterization of extracellular amylase production from stool bacteria, 2012 - 2015

Akkaya B., Akkaya R., Project Supported by Higher Education Institutions, Antibody Purification by Lectin Affinity Chromatography, 2005 - 2006

Akkaya B., Akkaya R., Project Supported by Higher Education Institutions, Preparation of Magnetic Metal Chelate Affinity sorbents for Purification of Stochrom C, 2002 - 2005

## **Patent**

Akkaya B., Sulfatide-Like Chitosane Derivative Compound, Patent, CHAPTER C Chemistry; Metallurgy, The Invention Registration Number: TR 2020 09575 B , Standard Registration, 2043

## **Activities in Scientific Journals**

BIOMED RESEARCH INTERNATIONAL, Editor, 2024 - Continues

Journal of Drug Design and Medicinal Chemistry, Editor, 2024 - Continues

THE SCIENTIFIC WORLD JOURNAL, Editor, 2024 - Continues

Applied Materials (Current Chinese Science) ( <https://benthamscience.com/journal/195/section/19>), Editor, 2023 - Continues

CUMHURİYET SCIENCE JOURNAL, Assistant Editor/Section Editor, 2018 - 2019

## **Memberships / Tasks in Scientific Organizations**

Association of Women in Science, Chairman, 2022 - Continues, Turkey

15 th International Hippocrates Congress on Medical and Health Science, Member of Science Committee, 2024 - 2024, Turkey

International Interdisciplinary Congress of Women in Science-II, Chairman, 2024 - 2024, Turkey

14 th International Hippocrates Congress on Medical and Health Sciences, Member of Science Committee, 2024 - 2024, Turkey

11 th International Hippocrates Congress on Medical and Health Sciences, Member of Science Committee, 2023 - 2023, Turkey

1 th International Interdisciplinary Congress of Women in Science, Chairman, 2023 - 2023, Turkey

10 th International Hippocrates Congress on Medical and Health Sciences, Member of Science Committee, 2022 - 2022, Turkey

9 th International Hippocrates Congress on Medical and Health Sciences, Member of Science Committee, 2022 - 2022, Turkey

8 th International Hippocrates Congress on Medical and Health Sciences, Member of Science Committee, 2022 - 2022, Turkey

## Scientific Consultations

Ministry of National Education (MEB), Scientific Consultancy, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, Turkey, 2017 - Continues

National Agencies, Scientific Consultancy, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, Turkey, 2015 - Continues

Central Finance and Contracts Unit (CFCU), Scientific Consultancy, Sivas Cumhuriyet University, Fen Fakültesi, Moleküler Biyoloji Ve Genetik Bölümü, Turkey, 2017 - 2019

## Scientific Research / Working Group Memberships

Technological And Medical Use Of Modified Polysaccharides, Karakalpak Devlet Üniversitesi, Özbekistan, -, 2022 - Continues

Innogy Cost, European Cooperation In Science And Technology (COST), Belçika, <https://www.cost.eu/actions/CA18103/> , 2019 - Continues

School Of Engineering Case Biomanufacturing And Microfabrication Laboratory, Case Western Reserve University, Amerika Birleşik Devletleri, <https://case.edu/engineering/labs/bml/lab-members>, 2016 - Continues

## Mobility Activity

Research Scholarship Program, Post Doc, Case Western Reserve University, United States Of America, 2016 - 2017

## Metrics

Publication: 70

Citation (WoS): 329

Citation (Scopus): 224

H-Index (WoS): 11

H-Index (Scopus): 10

## **Congress and Symposium Activities**

1 th International Interdisciplinary Congress of Women in Science, Moderator, Sivas, Turkey, 2023

## **Invited Talks**

Sivas' Changemaking Women Summit, Conference, Sivas Governorship, Turkey, March 2024

The Place of Women in Science and Engineering, Conference, In cooperation with KADEM Sivas Branch and Sivas Science and Technology University, Turkey, February 2024

1 th International Karatekin Science and Technology Conference, Conference, 1 th International Karatekin Science and Technology Conference, Turkey, September 2023

1 th International Interdisciplinary Congress of Women in Science, Conference, 1 th International Interdisciplinary Congress of Women in Science, Turkey, January 2023

## **Scholarships**

Innovation with Glycans: new frontiers from synthesis to new biological targets, TUBITAK, 2016 - 2017

## **Awards**

Akkaya B., Sivas' Women Making a Difference Award, Sivas Valiliđi, March 2024

Akkaya B., Sivas Cumhuriyet University APED (Academic performance impact evaluation) university first place, Sivas Cumhuriyet Üniversitesi , March 2024

Akkaya B., Science Award organized by the Scientific Research Projects Coordination Unit (CÜBAP), Sivas Cumhuriyet Üniversitesi Ve Cübap, March 2023

Akkaya B., Fleming C., Gürkan U. A., Federation Of American Societies For Experimental Biology (The 2017 BioArt Winners), Federation Of American Societies For Experimental Biology (The 2017 Bioart Winners), May 2017