

## Curriculum vitae

Elena Badea (née Rădulescu), PhD



### Employment

#### Academic tenured position

1994 – present      Research Assistant, Lecturer, Department of Chemistry, Faculty of Sciences, University of Craiova, Romania

#### Research & Development position

2012 – today      Project Director, National Research & Development Institute for Textiles and Leather (INCDTP), ICPI Division, Bucharest, Romania  
*Founding, Development & Coordination of the research thematic group “Advanced Research for Cultural Heritage (ARCH Lab)”* <https://erris.gov.ro/inREACH>  
 ARCH Lab was accredited in May 2013 (ANCS<sup>1</sup> order no.312/29.05.2013)

2019 – today      Member of the Scientific Council of INCDTP

2006 – 2010      Expert, National Research & Development Institute for Textiles and Leather (INCDTP), ICPI Division, Bucharest, Romania

#### Invited researcher

2012 – 2015      Invited Researcher, Department of Humanistic Studies, University of Turin, Italy

2006 – 2011      Invited Researcher, Department of Chemistry, University of Turin, Italy

#### Education

Mar 2002 – Dec 2005      **Postdoctoral research fellow**, Department of Chemistry, University of Turin, Italy

Sep 2001      **PhD in Chemical Engineering with Great distinction**, Dissertation title: “Comparative study on the behaviour of plant peroxidases in extreme environmental conditions”, University “Dunărea de Jos, Galati, Romania

Jun 1992      **MSc Degree with Honours** in Food Chemistry and Engineering, University “Dunărea de Jos, Galati, Romania

#### Research grants and fellowships

Nov 2001– Feb 2002      **University of Turin Fellowship** with the theme “Thermodynamic study of small model compounds by solution microcalorimetry”

Oct 2000 – Mar 2001      **NATO Outreach Fellowship** with the theme “Study of solute-solvent interactions in biochemical compounds by isothermal microcalorimetry”, awarded by the Italian Research Council (CNR), Rome, Italy

Apr 2000 – Jun 2000      **Erasmus post-graduated grant** with the theme “Study of thermal stability of various uncharged amino acids by DSC” at the Department of Chemistry, University of Turin, Italy

<sup>1</sup> ANCS – National Authority for Scientific Research  
[http://www.research.gov.ro/uploads/sistemul-de-cercetare/incd/incdtp\\_final\\_report.pdf](http://www.research.gov.ro/uploads/sistemul-de-cercetare/incd/incdtp_final_report.pdf)

**Short Research Stages**

- Jun 2010 Spectroscopic techniques for cultural heritage, within the FP7 Project CHARISMA (Cultural heritage Advanced Research Infrastructures: Synergy for a Multidisciplinary Approach to Conservation/Restoration)
- Feb 2004 Thermal mechanical analysis of parchments, Coord. Dr Marianne Odlyha, Birkbeck College, University of London, United Kingdom
- Nov 2003 Differential scanning calorimetry applied to the study of proteins, Coord. Prof. Alberto Schiraldi, University of Milan, Italy
- Mar 2001 Isothermal calorimetry applied to the study of biopolymers, Coord. Prof. Attilio Cesàro, University of Trieste, Italy
- Oct 2000 Pharmaceutical applications of isothermal microcalorimetry Coord. Prof. Anthony E. Beezer, University of Greenwich, United Kingdom

**Professional Training**

- 14 – 19 Course for Innovation Manager (Cod COR 242106) organized by Soft Skills Training SRL in accordance with the O.G. no. 129/2000.
- Jul 2020
- 24 – 27 Course for Expert accessing European structural and cohesion funds (Cod COR 242213) organized by Soft Skills Training SRL in accordance with the O.G. no. 129/2000
- Sept 2020
- 23 – 27 Cultural Management Course organized by the National Institute for Cultural Research and Training (INCFC) of the Ministry of Culture
- Nov 2020

**Membership of Professional and Scientific Bodies**

- 2021 Member of the Leather Discussion Group, American Institute of Conservation (AIC)
- 2021 Member of the Directory Board of the Romanian Chemistry Society (SChR)
- 2020 Founder and President of Chemistry for Cultural Heritage Division of the Romanian Chemistry Society (SChR), Member of the Board of Bucharest Branch 2 of SChR
- 2019 Member, Enabling Cultural Heritage Oriented European Strategies (ECHOES) European Cluster; contribution to the elaboration of ECHOES Position Paper
- 2019 Member of the Scientific Committee of National Research & Development Institute for Textiles and Leather, Bucharest
- 2017 Founder and President of Chemistry for Cultural Heritage Group of the Romanian Chemistry Society (SChR)
- 2011 Delegate of the Romanian Chemistry Society to the European Chemistry Society (EuChemS) Working Party on Chemistry for Cultural Heritage (WP CCH)
- Member of the International Board of WP CCH
- 2011 Founder and President of the Romanian Association Science and Cultural Heritage in Connection (i-CON), <http://i-con-org.ro/index.php>
- 2007 Member, Commission of Thermal Analysis and Calorimetry of the Romanian Academy of Science
- 2000 Member, Italian Association for Calorimetry and Thermal Analysis (AICAT)
- 1994 Member of the Romanian Chemistry Society (SChR)

**Honours and awards**

- 2020 Gold Medal and Diploma for “Composition with anti-fungal and antibacterial effect for curative and preventive conservation of collagen-based heritage objects”, International Exhibition of Inventions and Innovations
- Gold Medal and Diploma for “Modern parchment for creative industry and preparation method thereof”, 24<sup>th</sup> Edition of the International Exhibition of Inventions INVENTICA, Iasi “TRAIAN VUIA”, Timisoara
- 2019 “Petru Poni” Medal and Honour Diploma of the Romanian Chemistry Society
- 2018 The Excellence Diploma for the outstanding contribution to the promotion of chemistry for cultural heritage awarded by the Proud to be Romanian Project on the occasion of the Romania's centennial anniversary
- 2017 The Excellence Diploma for the outstanding contribution to the study and preservation of manuscripts and rare book collections awarded on the occasion of the 150<sup>th</sup> anniversary of the establishment of the Romanian Academy Library

- 2014 Short biography in the 2014 Edition of “Who is Who in Thermal Analysis and Calorimetry”, Series: Hot Topics in Thermal Analysis and Calorimetry, Vol. 10, I.M. Szilágyi and G. Liptay Eds., Springer. Information on 350 leading scientists in thermal analysis and calorimetry field.
- 2013- today Recognized reviewer certificates in recognition of the review contributed to various journals (Polymer Degradation and Stability, Journal of Cultural Heritage, Applied Clay Science, Journal of Cleaner Production etc)

### Teaching – University of Craiova, Romania

- 2018 - present Chemical Thermodynamics - Course & Practical work, Biotechnology and Pharmaceutical Chemistry Degree Courses, Faculty of Sciences  
Materials Chemistry - Course & Applications, Mechatronics, Automation and Applied Electronics Engineering Degree Courses, Faculty of Automation, Computers and Electronics
- 1998-2001 Enzymology - Course & Practical work, Biochemistry Degree Course, Faculty of Sciences  
Biochemistry - Course & Practical work, Environmental Chemistry Master Course, Faculty of Sciences
- 1994-1998 Biochemistry (laboratory and lecture classes), Food Science Degree Course, Faculty of Horticulture

### Teaching – University of Turin, Italy

- 2003 – 2008 Tutoring Course in Thermodynamics, Chemical Bond and Kinetics, Pharmaceutical Chemistry and Technology Degree Course, Faculty of Pharmacy

### Supervision - PhD thesis / MSc dissertation

#### At the INCDTP-ICPI, Bucharest, Romania

- 2021 Co-coordinator of interdisciplinary projects within the European Project Semester: “One-semester multidisciplinary and multicultural projects”, in collaboration with University Politehnica of Bucharest  
- Eco-friendly and sustainable container for artwork exhibitions  
Tomin Nicoli, Quero Romain, Verschueren Victor, Scheuer Jules
- 2020 - Concept and design of a leather library (materioteca) for the National Research & Development Institute for Textiles and Leather, ICPI Division, Bucharest
- 2019 Bertrand Arthur, Poynts Jack, Andrieu Clarisse, Mourier David, Nita Lucian  
- Eco-sustainable fireproofing / waterproofing multifunctional furniture  
Bebon Marie, Mărcăineanu Mariana, Negrini François Pascual, Cascant Anaebon Marie
- 2019 - onward PhD 6-month research stage coordination: Erica Rebba, University of Turin (2019); Iliaria Quaratesi, University of Salerno (2021)
- 2018 - 2020 Co-supervised MSc diploma students at INCDTP-ICPI, Bucharest, in collaboration with University Politehnica of Bucharest: Emanuel Hadimbu, Maria-Cristina Micu, Iulia Maria Caniola and Maria Simona Paunescu
- 2012 - onward PhD Guidance Commission for Cristina Carsote, Claudiu Sendrea, Maria-Cristina Micu, Iulia Maria Caniola

#### At the University of Turin, Italy

- 2006 - onward Mentorship for doctoral and postdoctoral students Zhenni Gesse (2006), Alexandra Kurysheva (2007), Vasily Naumov (2008), and Konstantin Grazhdan (2010) in collaboration with Prof. Tatiana Usacheva from the State University of Ivanovo within Specific Accord between the University of Turin and State University of Ivanovo within the Protocol between the Government of the Italian Republic and Government of the Russian Federation on Cooperation in the Field of Cultural Heritage
- 2004 Mentorship for PhD student Zuzana Reckova within the Accord for Cooperation between the Institute of Chemical Technology, Prague, and Department of Chemistry, University of Turin
- 2004-2006 Mentorship for MSc students Anna Boguszewska and Magdalena Saczuk within the Agreement for Cooperation and Scholar Exchange between the University of Łódź and University of Turin
- 2002-2006 Secondary PhD supervisor for Admir Masic (currently at MIT, USA) and Raffaella Ceccarelli (currently at the Politecnico di Torino, IT)
- 2002 - 2004 Secondary dissertation supervisor for Silvia Ravera (currently at Yale University, USA)

**At the University of Craiova, Romania**

2019 – onward Supervision of a number of bachelor theses at University of Craiova  
 1998 – 2000

**Research coordination****At the National Research & Development Institute for Textiles and Leather (INCDTP), ICPI Branch, Bucharest, Romania**

2012 – **Founder and coordinator of the Advanced Research for Cultural Heritage Laboratory (ARCH Lab)**  
 onward **Equipment purchased in the period 2012-2019** (<https://eeris.eu/ERIF-2000-000U-3916>) for 380.000,00 Eur: NMR-MOUSE PM 25, NMR-MOUSE PM 2.5 + spectrometer KEA2 (Magritek Ltd), portable spectrometer iRaman Plus equipped with fiber optic Raman probe and Raman Video Microsampling System (BW&Tek); portable micro-spectrometer XRF ELIO (Bruker); 3 digital microscopes Dino Lite with polarizer, UV and IR light; thermal microscopy system (MHT) made of a micro hot plate LTS-120 (Linkam) and stereomicroscope Nikon SMZ 745 with video camera; portable thermo hygrometer with RH probe, paper and leather pH-meter; micro differential scanning calorimeter-micro DSC III (Setaram), donated to E.Badea by the Department of Chemistry, University of Turin, Italy

**Research coordination and mentorship for the young researchers hired in the period 2012-2018:** Claudiu Sendrea, Emanuel Hadimbu, Maria Cristina Micu, Iulia Caniola, Simona Paunescu

**Prestigious analysis and diagnosis *in situ* campaigns performed by ARCH Lab:**

- Collection of documents on parchment issued by the Chancellery of Stephen the Great owned by the Romanian Academy Library Romanian Academy Library
- White leather and parchment bookbindings of the Rare Books Collection of the Romanian Academy Library
- The manuscripts of the Dragomirna Calligraphy and Miniature School (sec XVII), Museum of the Dragomirna Monastery, Dragomirna, Suceava
- The Tetraevanghelion of Nicodemus from Tismana (1404), the oldest manuscript dated in Wallachia with the oldest jewelled binding, the Tetraevanghelion of the Floresti Monastery (1578) and Codex Altemberger (1481), the first legal work from the medieval Romanian space, from the Manuscripts Collection of the National Museum of Romanian History
- Orthodox wood icon Collection of the Museikon Section of the National Museum of the Union, Alba Iulia
- The Blue Haired Mummy, “Franz Binder” Universal Ethnography Museum, Astra Complex Museum, Sibiu
- The liturgical manuscripts of the Basilica Marciana: Epistolario, Evangelistario and Messale (sec. XIV), Marciana National Library, Venice

**Research projects (as Director/Responsible/Project Promoter/Expert)****At the National Research & Development Institute for Textiles and Leather (INCDTP), ICPI Branch, Bucharest, Romania**

2021 - 2024 IoT-based system for monitoring museum environment (MUSEION), E!13370, Eureka Network, Project ideation and responsible for INCDTP-ICPI

2021 - 2024 Biodegradable and antimicrobial re-tanning agent and coating for ecological and safe leather (BioSafe Leather), E!13427, Eureka Network, Project ideation and responsible for INCDTP-ICPI

2021 - 2024 Advanced CleAning and Protection of TANgible culture heritage (CAPTAN). Key person.

2019 – 2022 Integrated analytical system for the analysis and diagnostic of modern materials and contemporary art preservation (Mnemo Art), NUCLEU Programme, contract no. 4N/2019 PN 19 17-05-01. PROJECT RESPONSIBLE

2018 – 2020 Innovative materials and technologies for sustainable leather manufacturing for automotive (InSuLa), Manunet Project MNET17/NMCS-2303 contract no. 35/2018. PROJECT DIRECTOR for INCDTP-ICPI

2018-2021 Implementation and exploitation of the scientific research results in the practice of restoration and conservation of cultural goods (IMPLEMENT), contract no. 56/2018. PROJECT RESPONSIBLE

2018 Natural leather for Contemporary Design (Leather CoDe), contract no. 176/2018. PROJECT RESPONSIBLE

- 2018 Parchment of 21<sup>th</sup> century. Creative re-interpretation of the traditional craftsmanship (Creative Parchment), contract no. 179/2018. Project ideation and KEY-EXPERT
- 2017–2018 Innovative methods for the preservation of collagen-based artworks (KOLLART). Experimental Demonstration Project, contract no.168/2017. PROJECT DIRECTOR
- 2017–2018 Eco-friendly leather manufacturing process for art and heritage bindery (PRO-ART). Experimental Demonstration Project, contract no.160/2017. KEY-EXPERT
- 2017–2019 Sustainable low-temperature plasma technologies for cleaning historical & archaeological artefacts from natural polymers (SUSPLART), EUREKA E! 9975. PROJECT RESPONSIBLE for INCDTP-ICPI
- 2016–2019 Nuclear techniques for the conservation of wooden heritage objects (NUTECO), Contract no. C5-11/2016. Research in Strategic Domains (space, nuclear) Programme (CEA-RO). PROJECT RESPONSIBLE for INCDTP-ICPI.
- 2014–2016 Intelligent strategy for movable cultural heritage monitoring in changing climate (INHerit), Romanian Applied Research Programme PNII 325/2014). PROJECT IDEATION & PROJECT RESPONSIBLE for INCDTP-ICPI
- 2014–2015 Il testamento di Messer Marco Polo, Transdisciplinary project coordinated by the Marciana National Library and SCRINIUM Spa, Venice. SCIENTIST IN CHARGE of the non-invasive damage assessment
- 2013–2014 Assessment and mitigation of climate impact on library and archival heritage (LIBER), Romania – Hungary Bilateral Collaboration PN II 671/2013). COORDINATOR
- 2013–2014 Quantitative Assessment of Environmental Impact on Collagen-Based Materials for Low-Energy Climate Control in Archives and Museums (ENVICOLL), Romania – France Bilateral Collaboration PN II 713/2013. PROJECT IDEATION and Project partner.
- 2013–2015 Experiments aiming to establish the optimum microclimate conditions for historical parchments preservation, Romania – Austria Bilateral Collaboration PN II 549/2012. Project partner
- 2012–2016 Intelligent system for analysis and diagnosis of collagen-based artefacts (COLLAGE), Romanian Applied Research Programme PN 224/2012). PROJECT DIRECTOR
- 2012–2015 Automatic Damage Assessment System for Cultural Heritage Leathers and Parchments (ADAS, E!5837) – Eureka project. PROJECT IDEATION and KEY-EXPERT
- 2007–2010 Durable materials and technologies for leather cultural heritage objects conservation and restoration to ensure viable cultural inheritance at community level (PELRESTAURO), Romanian Applied Research Programme PN 91012/2007. EXTERNAL EXPERT
- 2006–2008 Multidisciplinary studies on the deterioration mechanisms in historical parchment documents (PERGAMO), Romanian Programme Research of Excellence – CEEEX 1165/2006. EXTERNAL EXPERT

#### **At the University of Turin, Italy**

- 2014 – 2014 Il testamento di Messer Marco Polo, Transdisciplinary project coordinated by the Marciana National Library and SCRINIUM Spa, Venice. SCIENTIST IN CHARGE of the non-invasive damage assessment
- 2013 – 2014 Advanced techniques and interdisciplinary studies for improved assessment of historical parchments (ParIS, RO13MO10) - Executive Programme for Scientific and Technological Co-operation between Italy and Romania. Co-coordinator
- 2010 – 2011 Study and diagnosis of historical parchments using improved systems for multispectral analysis (MuSA System) - Italian Science & Heritage Programme. Co-investigator
- 2007 – 2008 Meso- and nanoscale processes in environmental deterioration of collagen based historical materials, Italian Ministry for Education and Research (MIUR) funding programme for basic research. Project partner.
- 2006 – 2010 Old parchment evaluation, restoration and analysis (OPERA) CIPE-2004-D39 - Italian Research Programme (CIPE) – Nanoscience Domain. Co-investigator
- 2005 – 2006 Thermodynamics of biological model compounds and complex systems in both aqueous solution and pure state - Italian Ministry for Education and Research (MIUR) funding programme for basic research. Project partner.
- 2005 – 2006 Structural and functional nanomaterials (NANOMAT) CIPE-2004-D26 - Italian Research Programme (CIPE) – Nanoscience Domain. KEY-EXPERT



- 2004 – 2005 Thermodynamics of bio-pharmaceutical compounds - Italian Ministry for Education and Research (MIUR) funding programme for basic research. Project partner
- 2003 – 2006 European Virtual Institute for Thermal Metrology (EVITherM) G7RT-CT-2002-05111. European Commission FP6 Framework. KEY-EXPERT
- 2002 – 2005 Improved Damage Assessment of Parchments (IDAP) EVK4-CT-2001-00061. European Commission FP5 Framework. Project partner
- 2002 – 2003 Phase transitions and thermodynamic properties of model compounds of biological interest - Italian Ministry for Education and Research (MIUR) funding programme for basic research. Project partner

### Dissemination projects

- 2019 Organization of the 6<sup>th</sup> Edition of the International Seminar & Workshop “Emerging technology and innovation for the conservation of cultural heritage (ETICCH 2019) with the theme: The cultural object - from investigation to restoration, Contract no. 2M/22.08.2019 (Contract de finanțare a manifestării științifice și a evenimentelor asociate).
- 2018 Organization of the 5<sup>th</sup> International Congress on „Chemistry and Cultural Heritage” – ChemCH 2018, Contract no. 26M / 12.06.2018 (Contract de finanțare a manifestării științifice și a evenimentelor asociate).
- 2012 Organization of the International Workshop “Emerging Technology and Innovation in Conservation of Cultural Heritage”, grant no. PN-II-ID-WE-2012-4-035

### International research management

- 2021– 2023 Accords for Cooperation between INCDTP-ICPI and
- Institute for Biological Systems (ISB-CNR), National Research Council of Italy, Rome, on the topics:
    - i. Study and quantification of the deterioration mechanism of historical collagen-based materials by advanced methodologies;
    - ii. Identification of the most suitable solutions to treat, combat and remedy the biodeterioration of archival heritage.
  - University of Salerno, Department of Chemistry and Biology “A. Zambelli”, Italy, on the topic: Development of new tanning agents for eco-sustainable tanning systems
  - University of Chemistry and Technology, Ivanovo, Russian Federation, on the topics:
    - iii. Modification of polymer systems in order to create new functional materials for medicine and
    - iv. Inclusion complexes of biologically active molecules with macrocycles and their thermodynamic behavior.
- Responsible person for INCDTP-ICPI
- 2016 – 2019 Accord for Cooperation between INCDTP-ICPI and Department of Chemistry, University of Palermo on the topic: “Nanotechnologies in the field of cultural heritage”. Responsible person for INCDTP-ICPI
- 2016 – 2019 Accord for Cooperation between INCDTP-ICPI and Department of Humanistic Studies, University of Turin on the topic: “Preservation of written cultural heritage across West and East Europe: materials, crafts, techniques and intangible aspects”. Responsible person for INCDTP-ICPI
- 2014 – 2016
- 2012 – 2017 Accord for Cooperation and Scholar Exchange between the University of Craiova and Department of Chemistry, University of Turin on the topic: “Study and diagnosis of environmental deterioration of collagen-based heritage materials by advanced physical-chemical and imaging techniques”. Responsible person for University of Craiova.
- 2006 – 2009 Accord for Cooperation between the INCDTP-ICPI, Bucharest and Department of Chemistry, University of Turin on the topic: “Meso- and Nanoscale Processes in Environmental Deterioration of Collagen Based Historical Materials”. Promoter

### Organisational activities

- July/2022 Member, International Board, International Congress “Chemistry for Cultural Heritage”: ChemCH 2022, Ravenna, Italy
- November 2021 **Chair**, International Seminar and Workshop “Emerging Technology and Innovation in Conservation of Cultural Heritage” (ETICCH 7<sup>th</sup> Edition) with the theme “Colour in art: from mineral to modern colours”, Sibiu, Romania (hybrid event)

- 14–17/10/2020 Member, Organizing Committee, “39<sup>th</sup> Dyes in History and Archaeology” (DHA) Conference, Sibiu, Romania
- 1–3/10/2020 Member, Scientific Committee, International Conference “Advanced Materials and Systems” (ICAMS 2020), Bucharest, Romania
- 11–13/09/2019 **Chair**, International Seminar and Workshop “Emerging Technology and Innovation in Conservation of Cultural Heritage” (ETICCH 6<sup>th</sup> Edition) with th theme “The Cultural Object: from Investigation to Restoration”, Sibiu, Romania
- 27–30/08/2019 Member, Scientific Committee, Central & Eastern European Conference on Thermal Analysis and Calorimetry: CEEC-TAC 5, Rome, Italy
- 18–20/10/2018 Member, Scientific Committee, International Conference “Advanced Materials and Systems” (ICAMS 2018), Bucharest, Romania
- 27–30/08/2018, Member, Scientific Committee, 12th European Symposium on Thermal Analysis and Calorimetry (ESTAC 12), Brasov, Romania
- 3–7/07/2018 **Chair**, 5<sup>th</sup> International Congress “Chemistry for Cultural Heritage” (ChemCH 2018), Bucharest, Romania
- 3–14/09/2017 **Chair**, International Seminar and Workshop “Emerging Technology and Innovation in Conservation of Cultural Heritage” (ETICCH 5<sup>th</sup> Edition) with the theme “Organic Artefacts: From Research to Exhibition”, Sibiu, Romania
- 28–31/08/2017 Member, Scientific Committee, Central & Eastern European Conference on Thermal Analysis and Calorimetry: CEEC-TAC 5, Chisinau, Republic of Moldova
- 3–4/11/2016 **Chair**, International Seminar “Emerging Technology and Innovation in Conservation of Cultural Heritage” (ETICCH 4<sup>th</sup> Edition) with the theme “Diagnosis and Monitoring Hierarchically Complex Historical Materials”, Bucharest, Romania
- 23–25/10/2016 Member, Scientific Committee, International Conference “Advanced Materials and Systems” (ICAMS 2016), Bucharest, Romania
- 5–8/07/2016 Member, International Board, International Congress “Chemistry for Cultural Heritage”: ChemCH 202216, Brussels, Belgium
- 5/11/2015 **Co-chair**, Scientific Seminar and Exhibition „Pergamentul...o poveste. Fața nevăzută a documentelor emise de Cancelaria domnească in vremea lui Ștefan cel Mare”, Romanian Academy Library, Bucharest, Romania
- 25–28/08/2015 Member, Scientific Committee, Central & Eastern European Conference on Thermal Analysis and Calorimetry: CEEC-TAC 5, Chisinau, Ljubljana, Slovenia
- 20–22/10/2014 Member, Scientific Committee, International Conference “Advanced Materials and Systems” (ICAMS 2014), Bucharest, Romania
- 16–18/10/2014 **Chair**, International Seminar Emerging Technology and Innovation in Conservation of Cultural Heritage (ETICCH 3<sup>rd</sup> Edition) with the theme “Advanced Technology for Diagnosis, Preservation and Management of Historical and Archaeological Parchment, Leather and Textile Artefacts”, Sibiu, Romania
- 2–5/07/2014 Member, International Board, International Congress “Chemistry for Cultural Heritage” (ChemCH 2014), Vienna, Austria
- 27/02/2013 Member, Organisation Committee, Seminario scientifico “Recenti sviluppi nell’analisi non invasiva delle pergamene storiche”, The State Archives of Turin, Turin, Italy, in collaboration with University of Turin and National Metrology Institute (INRiM), Turin, Italy
- 27–20/08/2013 Member, Scientific Committee, Central & Eastern European Conference on Thermal Analysis and Calorimetry: CEEC-TAC 5, Chisinau, Vilnius, Lithuania
- 3–6/09/2013 **Chair**, International Seminar “Emerging Technology and Innovation in Conservation of Cultural Heritage” (ETICCH 2<sup>nd</sup> Edition) with the theme “Parchment, Leather and Textile Collections and Their Environment”, Bucharest, Romania
- 24–26/09/2012 **Co-Chair**, International Workshop “Emerging Technology and Innovation in Conservation of Cultural Heritage” (ETICCH 1<sup>st</sup> Edition) with the theme “Preservation of Parchment, Leather and Textiles”, Bucharest, Romania
- 5–10/09/2012 Member, Scientific Committee, Central & Eastern European Conference on Thermal Analysis and Calorimetry: CEEC-TAC 5, Chisinau, Moldova Republic
- 24–28/08/2011 **Co-ordinator**, International Workshop “Non-Invasive and Micro-Invasive Physical-Chemical Techniques for Cultural Heritage”, within MATCONS 2011, Craiova, Romania

17/10/2010	Member, Organising Committee, Seminario “Digitalizzazione dei beni librari: duplicazione, conoscenza, conservazione”, University of Turin, Turin, Italy
14–15/09/2009	<b>Co-coordinator</b> , International Workshop “Conservation and Restoration of Historical Parchment and Leather”, within MATCONS 2009, Craiova, Romania
5–8/09/2008	Member, Organizing Committee, International Seminar & Workshop “Conservation and Restoration of Parchments (CRP 2008)”, Turin, Italy
5–11 Aug 2007	Member, Organizing Committee, 41 <sup>th</sup> International Union of Pure and Applied Chemistry (IUPAC) World Chemistry Congress, Turin, Italy
12–19/10/2004	<b>Co-coordinator</b> , EVITherM EC Project Workshop within the 13 <sup>th</sup> Congress of the International Confederation for Thermal Analysis and Calorimetry (ICTAC), Chia Laguna, Italy
25–26/03/2004	<b>Co-coordinator</b> , IDAP EC Project Mid-Term Meeting and Workshop, Turin, Italy

### Editorial work

Since 2020	Member of the Editorial Board of Journal of Leather Science and Engineering, Springer Open. ISSN: 2524-7859. <a href="https://jlse.springeropen.com/about/editorial-board">https://jlse.springeropen.com/about/editorial-board</a>
Since 2021	Member of the Editorial Board of Annals of the University of Oradea. Fascicle of Textiles, Leatherwork, <a href="http://textile.webhost.uoradea.ro/Annals/Comitet%20stiintific.html">http://textile.webhost.uoradea.ro/Annals/Comitet%20stiintific.html</a>
2020 – 2021	Guest editor: Special Issue “Tanning Chemistry: From Prehistory to Modern Times”, Molecules, MDPI. ISSN 1420-3049 (Open until November 30 <sup>th</sup> 2021)
2020 – 2021	Guest editor: Special Issue of Journal of Thermal Analysis and Calorimetry dedicated to the memory of Professor Giuseppe Della Gatta (Open until December 31 <sup>st</sup> , 2021)
2019	Co-editor of the Postprint volume of the 6 <sup>th</sup> ETICCH Edition: “The Cultural Object: From Investigation to Restoration”, Oscar Print, Bucharest, 2019, ISBN 978-973-668-503-3.
2018 – 2019	Guest editor: Special Issue of Heritage Science dedicated to ChemCH 2018 Conference, Vol 7 (2019); <a href="https://www.springeropen.com/collections/chemch2018">https://www.springeropen.com/collections/chemch2018</a>
<b>Editorial</b>	E. Badea, “Chemistry for cultural heritage: connecting past and future”, Herit. Sci. 7, 99 (2019) DOI: 10.1186/s40494-019-0342-2
2015	Co-editor of “Pergamentul...o poveste. Fata nevazuta a documentelor pe pergament emise de Cancelaria domneasca in vremea lui Stefan cel Mare” Editura Excelenta prin Cultura, București 2015. ISBN 978-606-93840-1-5; eBook, Editura Certex, București 2015. e-ISBN 978-973-1716-62
2012	Guest editor: Special Issue dedicated to MATCONS 2011 Conference, e-Preservation Science Vol 9 (2012). ISSN 1581-9280

### Expert/Evaluator/Reviewer activity

#### Evaluator for:

- Executive Unit for Financing Higher Education, Research, Development and Innovation (UEFISCDI) – Material Science & Engineering, Chemistry, Social and Cultural Innovation Panels;
- H2020-MSCA-IF;
- Eureka Network;
- PRIN (Projects of National Interest) Programme, Italian Ministry of Education, Universities and Research (MIUR);
- Postdoctoral grants - University of Florence and University of Turin

#### Expert:

- Jul-Sept 2021: Expert, Panel Culture, Creativity and Inclusive Society, Elaboration of the Strategic Research Agenda for the programming period 2021-2027
- Aug. 2021: Expert, National Roadmap for Research Infrastructures, Romanian Ministry of Research and Innovation (2021-2027), Romanian Ministry of Research, Innovation & Digitalisation (SIPOCA 592, <https://uefiscdi.gov.ro/consolidarea-capacitatii-anticipatorii-de-elaborare-a-politicilor-publice-bazate-pe-dovezi-in-domeniul-cercetarii-dezvoltarii-si>)
- Aug – Sept 2017: Rapporteur, Social & Cultural Innovation Panel, Development of the National Roadmap for Research Infrastructures (2017-2021), Romanian Ministry of Research and Innovation (SIPOCA 27, <https://uefiscdi.gov.ro/dezvoltarea-capacitatii-administrative-a-mci-de-implementare-a-unor-actiuni-stabilite-in-strategia-nationala-de-cdi-2014-2020>)

**Reviewer:** Heritage Science; Journal of Cultural Heritage; Studies in Conservation; Archaeometry, Journal of Thermal Analysis and Calorimetry; Thermochimica Acta; Journal of Chemical Thermodynamics; Coatings, Applied Clay Science; ACS Sustainable Chemistry & Engineering; Journal of Cleaner Production; Polymer Degradation and Stability; Molecules



**Invited & key-note lectures (since 2010)**

1. E. Badea, The power behind micro-calorimetry - About leather making and its preservation over the millennia. Leather Discussion Group of American Institute of Conservation - Leather Panel with the theme "Selection and Use: a panel discussion on the impact of conservators' choices", May 5, 2021(online event)
2. C. Carșote, E. Badea, C. Șendrea, N. Proietti, Damage assessment of parchment and leather. A multi-analytical approach. 6th International Conference on Emerging Technology and Innovation for the Conservation of Cultural Heritage (ETICCH 2019), 11-13 Sept, Sibiu, Romania.
3. Cristina Carsote, Elena Badea, Lucretia Miu, In situ investigation of organic materials in museum objects, Conferinta CSTI 2018 Conservation Science, Technology and Industry, Bratislava, Slovakia, 7 - 9 March 2018
4. Elena Badea, inREACH Infrastructure for Research on Cultural Heritage in the Romanian and European Context, Conferinta CSTI 2018 Conservation Science, Technology and Industry, Bratislava, Slovakia, 7 - 9 March 2018
5. Elena Badea, Cristina Carsote, Claudiu Sendrea, Giuseppe Della Gatta, Micro DSC, thermal microscopy, ATR-FTIR and unilateral NMR for the characterisation of collagen-based artefacts, XXXL National Congress on Calorimetry Thermal Analysis and Applied Thermodynamics, Pisa, Italy, 17-19 December 2018
6. Elena Badea, Micro DSC and unilateral NMR in the study of collagen-based materials, 4th Italo-Russian Round Table "New Functional Materials and Prebiotic Compounds", organized by the Italian Embassy in Moscow, Italian National Interuniversity Consortium for Material Science and Technology and Ivanovo State University of Chemistry and Technology, 7-20 Oct 2016, Suzdal, Russia
7. Elena Badea, Cristina Carsote, Claudiu Sendrea, Oana A. Miu, Giuseppe Della Gatta, Indagini fisico-chimiche di manufatti storici a base di collagene: pergamene e cuoi, "Conservazione e Restauro dei Beni Culturali" Lectures, Università degli Studi di Palermo, Dipartimento di Chimica e Fisica, Palermo, Italy, 8 Jun 2016
8. Daniela Ichim, Elena Badea, Cristina Carsote, Artificial ageing treatments of collagen-based materials: how significant they are? 4th International Seminar and Workshop, Emerging Technology and Innovation for Cultural Heritage (ETICH), Romanian Academy Library, Bucharest, Nov 3-4, 2016
9. Zoltan Sebestyén, Elena Badea, Emma Jakab, Cristina Carsote, Eszter Barta-Rajnai, Zsuzsanna Czégény, Thermal decomposition study of vegetable tanning agents and tanned leathers. 4th International Seminar and Workshop, Emerging Technology and Innovation for Cultural Heritage (ETICH), Romanian Academy Library, Bucharest, Nov 3-4, 2016
10. E. Badea, C. Carsote, O.A Miu, C. Sendrea, G. Della Gatta, Multi-technique approach based on mobile instruments for in-situ integrated study of historical parchment and leather, Conservation Science, Technology & Industry Conference (CSTI 2015) "Integration of Conservation Science and Technologies into interdisciplinary preservation of heritage materials and objects", Slovak University of Technology, 7-9 October 2015, Bratislava, Slovakia
11. E. Badea, T. Usacheva, G. Della Gatta, Quantifying damage and loss in historical and archaeological collagenic artefacts by Differential Scanning calorimetry and thermal microscopy, 3rd Italo-Russian Round Table "Perspectives for the use of calorimetry and thermal analysis in chemistry and chemical technology", 1-4 Oct 2014, Plyos, Russia
12. E. Badea, T. Usacheva, G. Della Gatta, Degradation of historical and archaeological collagenic artefacts through the lens of Differential Scanning calorimetry, XXXVI Italian Congress on Calorimetry, Thermal Analysis and Applied Thermodynamics, 8-11 Sept 2014, Cagliari, Italy
13. E. Badea, C. Carsote, G. Della Gatta, Assessing the impact of NOx on parchment. Synergistic effects of light and temperature, 3<sup>rd</sup> International Congress "Chemistry for Cultural Heritage" (ChemCH 2014), 2-5 July, Vienna, Austria
14. E. Badea, Damage assessment approaches for collagen-based artefacts: Simple test and sophisticated analyses. 2<sup>nd</sup> Conference "Men and Books: From Microorganisms to Mega-organisms", 28 Apr-1 May 2014, Horn, Austria
15. E. Badea, Damage Ranking in Historical Parchment: From Microscopic Study of Fibres Shrinkage to Collagen Denaturation Assessment by micro-DSC. Chemistry in Art and Cultural Heritage Lectures, Institute of Science and Technology in Art, Academy of Fine Arts, 25 Jan 2013, Vienna, Austria
16. E. Badea, Accertamento e classificazione del danno mediante la tecnica MHT (Micro Hot Table):miglioramenti diagnostici e informatizzazione del metodo (progetto COLLAGE). Seminario "Recenti sviluppi nell'analisi non invasiva delle pergamene storiche", The State Archives of Turin, 20 Feb 2013, Turin, Italy
17. E. Badea et al., Identification of environmentally sensitive archival and library parchment for low energy environmental control in storage. International Conference "Cultural Heritage Conservation Science & Sustainable Development", 23-25 Oct 2013, Paris, France
18. E. Badea and G. Della Gatta, Micro dsc on display: understanding past and future of parchment and leather heritage. XXXIV National Congress on Calorimetry, Thermal Analysis and Applied Thermodynamics, June 5-8, 2012, Rome, Italy
19. E. Badea, G. Della Gatta, A thermal stability approach for some series of uncharged small peptides by DSC, 21<sup>th</sup> Symposium of Thermal Analysis and Calorimetry of the Romanian Academy Commission of Thermal Analysis and Calorimetry, Romanian Academy Library, 17 February 2012, Bucharest, Romania
20. E. Badea, G. Della Gatta et al., Physical-chemical tools for the assessment of Indoor environmental effects on archival PArchment heritage in a changing climate, 1<sup>st</sup> Italo-Russian Round Table "Perspectives for the use of calorimetry and thermal analysis in chemistry and chemical technology", 4-7 Oct 2010, Suzdal, Russia

## Patent applications

- 2020 M. Crudu, E. Badea, M.-C. Micu, C. Sendrea, L. Miu, Composition based on protein from leather waste and extracts from brown algae and biotanning process thereof, A/00235-30.04.2020; Romanian Office for Inventions and Trademarks - OSIM.
- 2019 M. Crudu, E. Badea, L. Miu, C. Şendrea, Eco-friendly process for obtaining collagen-based materials for creative industries, A/00701-31.10.2019, Romanian; OSIM
- 2018 L. Miu, M. Crudu, E. Badea, M.-D. Berechet, C. Sendrea, Composition with anti-fungal and antibacterial effect for curative and preventive conservation of collagen-based heritage objects, A/00375-29.05.2018; OSIM
- 2018 L. Miu, E. Badea, Modern parchment for creative industry and preparation method thereof, A/01023-03.12.2018; OSIM
- 2018 L. Miu, M. Crudu, E. Badea, Ecological process for obtaining sheepskin with antimicrobial properties, A/01022-03.12.2018; OSIM
- 2014 O.A. Miu, S. Ciobanu, E. Badea, L. Miu, Automatic process for assessing the degree of deterioration of historical and archaeological leather and parchment artefacts, A00826/05.11.2014; OSIM

## Bibliography

Please see the Researcher ID profile for citation data: WOS: **HI 16; 601 citations**; Google Scholar: **HI 19, 1025 citations**; Annual citation percentile – **93<sup>rd</sup> percentile in 2019**; Author position: **31% First author, 28% Corresponding author**  
<https://www.webofscience.com/wos/author/record/1138537>  
<https://orcid.org/0000-0003-1437-2844>; <https://www.brainmap.ro/elena-badea>

## Dissemination of research in cultural heritage preservation to the public

### Media

In 2021, EB is taking part in the transdisciplinary project Fusion AIR - a residency program coordinated by the Association Qolony and designed to create a meeting place between artists and scientists. <https://qolony.eu/fusionair-2021/> **Fusion Air 2021-Structuri Convertibile** aimed to provide a functional collaborative infrastructure that facilitates artists' participation in scientific research, ultimately bringing technical concepts closer to a broader audience. Its successful path has been highly publicized: <https://www.observatorcultural.ro/articol/structuri-convertibile-un-dialog-inedit-intre-stiinta-si-arta/>  
<https://www.natgeo.ro/noutati/noutati-noutati/37867-fusion-air-2021-artistii-si-cercetatorii-prezinta-temele-de-cercetare-si-creatie>  
<https://www.rfi.ro/emisiunile-rfi-ro-134919-zebra-expozitia-fusionair-2021-structuri-convertibile>  
<https://propagarta.ro/imagini-video/fusionair-2021-structuri-convertibile/>  
[http://www.marketwatch.ro/articol/17332/Fusion\\_AIR\\_proiectul\\_care\\_transforma\\_artistii\\_in\\_cercetatori/](http://www.marketwatch.ro/articol/17332/Fusion_AIR_proiectul_care_transforma_artistii_in_cercetatori/)

In 2021, EB has received the invitation to participate in the program of the **French Institute / French Embassy "International Day of Women and Girls in Science" - February 11, 2021**, a program dedicated to success stories of women researchers in France and Romania ("stories of French and Romanian women researchers").  
<https://www.facebook.com/InstitutulFrancez/posts/4151111641573981>

EB's research is frequently featured in the media. The research dedicated to safeguarding historical parchment and leather artefacts has attracted considerable media interest including **Radio Romania Cultural** ([Secretul palimpsestului lui Arhimede – Radio România Cultural \(radioromaniacultural.ro\)](https://www.radioromaniacultural.ro)); **Dimensiunea științifică a artei: Istoria civilizației poate fi scrisă și prin istoria materialelor pe care oamenii le-au folosit; Ce spun analizele de laborator despre istoria realizării unei icoane de secol XVII; Colagenul este o mo;ecula foarte versatile;**

EB's research was recently featured in the online publication for the Materials Science community, *Azo Materials* *AzoM* ([The Science of Heritage Preservation: Safeguarding Historical Parchment and Leather Artifact | Labcompare.com](https://www.labcompare.com)), and in *Microscopy-Wiley Analytical Science* (<https://analyticalscience.wiley.com/doi/10.1002/was.00170130>).

### Buletinul Societății de Chimie din România

E. Badea, Chimia în serviciul moștenirii culturale prin cercetare, inovare și networking – Laboratorul ARCH Lab din INCDTP-ICPI București, Vol. 2/2020, p.20-25; <http://www.schr.ro/doc/publicatii/buletinul-societatii-de-chimie-din-romania/2020-2.pdf>

E. Badea, Prezentarea Secției Chimia pentru Patrimoniul Cultural din SChR, Vol. 1/2020, p.26-31, <http://www.schr.ro/doc/publicatii/buletinul-societatii-de-chimie-din-romania/2020-1.pdf>

E. Badea, Chimia pentru artă în anul centenar. Congresul International Chemistry for Cultural Heritage, Vol.3/2019, p.33-34, <http://www.schr.ro/doc/publicatii/buletinul-societatii-de-chimie-din-romania/2019-3.pdf>

**Video book**

In 2016, EB, in her quality as heritage scientist, took part in the filming of “Io...Archimede. Il codice perduto”, a documentary written and directed by Vittorio Muscia and produced by Cinecittà 3 Roma. The documentary was recognized as a work of national cultural interest by the Italian Ministry of Cultural Heritage and Activities and Tourism in 2017. EB wrote the essay “Sovrapposizioni / Layerings / Suprapunerii” published in the ebook that accompanies the film. In 2018, EB translated the film in Romanian.

“Io...Archimede. Il codice perduto / Archimedes. The lost codex / Lombardi Editori & Cinecittà 3, Roma, 2017/2018, p. 68-69, 2017. ISBN-10: 88-7260-244-7; ISBN-13:9-788872-602447/ ISBN-10:88-7260-263-8; ISBN-13:9-788872-602638; Eu, Arhimede. Codicele pierdut”, Editura Muzeul Literaturii Române, București & Cinecittà 3, Roma, 2018, p.68-69. ISBN: 978-973-167-462-9

<https://www.unilibro.it/libro/muscia-vittorio/io-archimede-codice-perduto-ediz-bilingue-dvd-audio/9788872602447>

**ISI Scientific papers**

1. Z. Sebestyén, **E. Badea**, C. Carsote, T Szabó, Z. Czégény, B Babinszki, E Jakab, Characterization of historical leather bookbindings by thermal methods, *J. Anal. Appl. Pyrol.* **IF 5.541; Q1**, Virtual Special Issue (VSI), invited paper, under review.
2. G. Vyskočilová, R. Ševčík, C. Carsote, E. Badea (corresponding author), Burial-induced deterioration in leather – a complex FTIR-ATR, DSC, TG/DTG, MHT and SEM study, *Herit. Sci.* **IF 2.517; Q2**, under review, DOI: 10.21203/rs.3.rs-717123/v1
3. C. Carsote, C. Sendrea, M.-C. Micu, Alina Adams, **E. Badea** (corresponding author), Micro-DSC, FTIR-ATR and NMR MOUSE study of the dose-dependent effects of gamma irradiation on vegetable-tanned leather: The influence of leather thermal stability leather, *Rad. Phys. Chem.* 189, 2021, 109712. **IF 2.858; Q1**, DOI: 10.1016/j.radphyschem.2021.109712
4. F. Cappa, I Paganoni, C Carsote, M. Schreiner, **E. Badea** (corresponding author), Studies on the effect of dry-heat ageing on parchment deterioration by vibrational spectroscopy and micro hot table method, *Polym. Degrad. Stab.*, 182, 2020, 109375. **IF 5.030; Q1**, DOI: 10.1016/j.polymdegradstab.2020.109375
5. N. Proietti, Valeria Di Tullio, C. Carsote, **E. Badea** (corresponding author), <sup>13</sup>C Solid State NMR, ATR-FTIR and micro-DSC to study modern collagen based material and historical leather. *Magn. Reson. Chem.*, 58, 2020, 840-859. Invited paper, special issue on NMR in Cultural Heritage; **IF 2.035; Q2** (Spectroscopy) DOI: 10.1002/mrc.5024
6. F. Cappa, I. Paganoni, C. Carsote, **E. Badea**, M. Schreiner, Studies on the effects of mixed light-thermal ageing on parchment by vibrational spectroscopy and micro hot table method, *Herit. Sci.* 8, 15 (2019). **IF 2.517; Q2** (Spectroscopy), DOI: 10.1186/s40494-020-0353-z  
*Note: Federica Cappa, Ilaria Paganoni, Cristina Carsote, Elena Badea and Manfred Schreiner contributed equally to this work*
7. C. Carsote, **E. Badea** (corresponding author), I. Caniola, S. Paunescu, M.-C. Lupas, C. Sendrea, L. Miu, The Homiliary of Varlaam: Scientific investigation of the leather bookbinding, *Rev. Chim.* 71(3), 2020, 51-58. **IF 1.755; Q3** (Chemistry, Multidisciplinary)
8. **E. Badea**, Chemistry for cultural heritage: connecting past and future, *Herit. Sci.* 7, 99 (2019) Editorial. **IF 2.517; Q2** (Spectroscopy) DOI: 10.1186/s40494-019-0342-2;
9. C. Carsote and **E. Badea** (corresponding author), Micro differential scanning calorimetry and micro hot table method for quantifying deterioration of historical leather. *Herit Sci* 7, 48 (2019) **IF 2.517; Q2** (Spectroscopy) DOI:10.1186/s40494-019-0292-8;
10. **E. Badea** (corresponding author), C. Carsote, E. Hadimbu, C. Sendrea, M. C. Lupas, The effect of halloysite nanotubes dispersions on vegetable-tanned leather thermal stability. *Herit Sci* 7, 68 (2019) **IF 2.517; Q2** (Spectroscopy) DOI:10.1186/s40494-019-0310-x;
11. Z. Sebestyén, E. Jakab, **E. Badea**, E.Barta-Rajnai, C. Sendrea, Zs. Czégény, Thermal degradation study of vegetable tannins and vegetable tanned leathers, *J. Anal. Appl. Pyrol.* 138, 178-187 (2019) **IF 5.541; Q1** (Chemistry Analytical, Engineering Chemistry) DOI: 10.1016/j.jaap.2018.12.022;
12. Bernath, I. Teodorescu, M. Ryhl-Svendsen, **E. Badea**, L. Miu, M. Guttmann, Levels of Preservation for Cultural Heritage within an Open-air Museum, *Studies in Conservation* 63(sup1), 323-325 (2018).; **IF 0.739; Q4** (Chemistry Analytical, Applied Chemistry, Spectroscopy) DOI: 10.1080/00393630.2018.1486531

13. E. Hadimbu, **E. Badea**, C. Carsote, C. Sendrea, L. Miu Halloysite nanotubes as innovative consolidants for historical leather, Halloysite nanotubes as innovative consolidants for historical leather, Proceedings of the 7th International Conference on Advanced Materials and Systems, Eds. L. Albu and V. Deselnicu, p. 189-194 (2018) DOI: 10.24264/icams-2018.II.2
14. Sendrea, C. Carșote, M. Radu, E. Badea, L. Miu, The effect of gamma irradiation on shrinkage activity of collagen in vegetable tanned leather, *Rev. Chim.*, 68(7):1535-1538 (2017). IF 1.755; **Q3** (Chemistry, Multidisciplinary)
15. Sendrea, **E. Badea** (corresponding author), A. Adams, Unilateral NMR and micro-DSC study of artificially aged parchments, *Rev. Chim.*, 68(8):1780-1785 (2017). IF 1.755; **Q3** (Chemistry, Multidisciplinary)
16. **E. Badea** (corresponding author), C. Șendrea, C. Carșote, A. Adams, B. Blümich, H. Iovu, Unilateral NMR and thermal microscopy studies of vegetable tanned leather exposed to dehydrothermal treatment and light irradiation, *Microchem. J.* 129, 158-165 (2016); **IF 4.821; Q1** (Analytical Chemistry) DOI: 10.1016/j.microc.2016.06.01
17. C. Carșote, **E. Badea** (corresponding author), L. Miu, G. Della Gatta, Study of the effect of tannins and animal species on the thermal stability of vegetable leather by differential scanning calorimetry, *J. Thermal. Anal. Calorim.* 124(3), 1255-1266 (2016); **IF 3.99; Q2** (Analytical Chemistry, Thermodynamics) DOI: 10.1007/s10973-016-5344-7
18. C. Sendrea, C. Carsote, **E. Badea**, A. Adams, M. Niculescu, H. Iovu, Non-invasive characterisation of collagen-based materials by NMR-MOUSE and ATR-FTIR, *U.P.B. Sci. Bull., Series Chemistry*, 78(3),27-38 (2016). ISSN 1223-7027.
19. A. Cucos, C. Gaidau, **E. Badea**, L. Miu, Influence of glycerin on denaturation temperature of chrome- and vegetable-tanned leather, *Rev. Roum. Chim.*, 60(11-12), 1093-1096 (2015). IF 0.381, **Q4** (Chemistry, Multidisciplinary)
20. Z. Sebestyén, Z. Czégény, **E. Badea**, C. Carșote C. Șendrea, E. Barta-Rajnai, B. János, L. Miu, E. Jakab, Thermal characterization of new, artificially aged and historical leather and parchment, *J. Anal. Appl. Pyrol.* 115, 419-427 (2015); **IF 5.541; Q1** (Analytical Chemistry, Engineering Chemistry) DOI: 10.1016/j.jaap.2015.08.022
21. **E. Badea** (corresponding author), G. Della Gatta, B. Pałecz, Thermal properties of some small peptides (N-acetyl-amino acid-N'-methylamides) with non-polar side groups, *J. Chem. Thermodyn.*, Special Issue dedicated to the memory of the late Professor Manuel Ribeiro da Silva, invited paper, 63, 178-182 (2014); IF 2.888; **Q1** (Physical Chemistry, Thermodynamics) DOI: 10.1016/j.jct.2013.12.01
22. **E. Badea** (corresponding author), B. Nowicka, G. Della Gatta, Thermodynamics of fusion and sublimation for a homologous series of eleven alkane- $\alpha,\omega$ -diols HO-(CH<sub>2</sub>)<sub>n</sub>-OH: Structure-related odd-even effect, *J. Chem. Thermodyn.*, 68, 90-97 (2014): IF 2.888; **Q1** (Physical Chemistry, Thermodynamics) DOI: 10.1016/j.jct.2013.08.019
23. C. Carșote, P. Budrugeac, R. Decheva, N.S. Haralampiev, L. Miu, **E. Badea**, Characterization of a byzantine manuscript by infrared spectroscopy and thermal analysis, *Rev. Rou. Chim.*, 59(6-7), 429-436 (2014). IF 0.381, **Q4** (Chemistry, Multidisciplinary)
24. **E. Badea** (corresponding author), G. Della Gatta, T. Usacheva, Effects of temperature and relative humidity on fibrillar collagen within parchment: a micro-Differential Scanning Calorimetry (micro-DSC) study, *Polym. Degrad. Stab.*, 97, 346-353 (2012); IF 4.032; **Q1** (Polymer Science) DOI: 10.1016/j.polymdegradstab.2011.12.013
25. **E. Badea** (corresponding author), G. Della Gatta, M. Józwiak, C. Giancola, Hydration of thiourea and mono-, di- and tetra-N-alkylthioureas at infinite dilution: A Thermodynamic Study at a Temperature of 298.15 K, *J. Chem. Eng. Data*, Kenneth N. Marsh Festschrift, invited paper, 56/12, 4778-4785 (2011) IF 2.369; **Q2** (Chemical Engineering, Thermodynamics) DOI: 10.1021/je2007742
26. **E. Badea** (corresponding author), G. Della Gatta, P. Budrugeac, Characterisation and evaluation of the environmental impact on historical parchments by DSC, *J. Therm. Anal. Calorim.*, Cultural Heritage Special Chapter, invited paper, 104/2, 495-506 (2011) IF 2.731; **Q2** (Analytical Chemistry, Thermodynamics) DOI: 10.1007/s10973-011-1495-8
27. P. Budrugeac, **E. Badea** (corresponding author), G. Della Gatta, L. Miu, A. Comănescu, DSC study of deterioration caused by environmental chemical pollutants to parchment, a collagen-based material, *Thermochim. Acta*, 500, 51-62 (2010); IF 2.762; **Q2** (Analytical Chemistry, Thermodynamics) DOI: 10.1016/j.tca.2009.12.010
28. G. Della Gatta, **E. Badea**, M. Saczuk, Thermodynamics of solvation of some linear and branched aliphatic aldehydes in water and heptane. *J. Chem. Thermodyn.* 42, 1204-1208 (2010): IF 2.888; **Q1** (Chemical Engineering) DOI: 10.1016/j.jct.2010.04.017
29. G. Della Gatta, **E. Badea**, M. Józwiak, G. Barone, Hydrophobic-hydrophilic solvation of variously substituted n-alkylureas in aqueous solution: a calorimetric study at a temperature of 298.15 K, *J. Chem. Eng. Data*, William A. Wakeham Festschrift, invited paper, 54, 2739-2744 (2009). IF 2.369; **Q2** (Chemical Engineering) DOI: 10.1021/je9003405



30. **E. Badea** (corresponding author), L. Miu, P. Budrugaec, M. Giurginca, A. Mašić, N. Badea, G. Della Gatta, Study of deterioration of historical parchments by various thermal analysis techniques, complemented by SEM, FTIR, UV-VIS-NIR and unilateral NMR investigations, *J. Therm. Anal. Calorim.* 91, 17-27 (2008). IF 2.731; **Q2** (Analytical Chemistry, Thermodynamics) DOI: 10.1007/s10973-007-8513-x
31. L. Abate, **E. Badea**, I. Blanco, G. Della Gatta, Heat capacities and enthalpies of solid-to-solid transition and fusion of a series of eleven primary alkylamides by DSC, *J. Chem. Eng. Data* 53, 959-965 (2008). IF 2.369; **Q2** (Chemical Engineering) DOI:10.1021/je700662a
32. G. Della Gatta, **E. Badea**, M. Józwiak, P. Del Vecchio P. Thermodynamics of solvation of urea and some mono-substituted N-alkylureas in water at 298 K, *J. Chem. Eng. Data* 52, 419-425 (2007). IF 2.369; **Q2** (Chemical Engineering) DOI:10.1021/je060360n
33. D. Ferro, **E. Badea** (corresponding author), M. Józwiak, J.V. Rau, Thermal stability and related thermodynamic properties of N-ethylthiourea, *Thermochim. Acta* 460/2, 50-52 (2007). IF 2.762; **Q2** (Analytical Chemistry, Thermodynamics) DOI: 10.1016/j.tca.2007.05.009
34. L. Abate, E. Badea, I. Blanco, D. D'Angelo, G. Della Gatta, Heat capacities of a homologous series of twelve terminal linear alkylidiamides determined by DSC, *J. Therm. Anal. Calorim.* 90, 575-580 (2007). IF 2.731; **Q2** (Analytical Chemistry, Thermodynamics) DOI:10.1007/s10973-006-7912-8
35. **E. Badea**, I. Blanco, G. Della Gatta, Fusion and solid-to-solid transitions of a homologous series of alkane- $\alpha,\omega$ -dinitriles, *J. Chem. Thermodyn.* Issue dedicated to Professor J. Simoes Redinha, invited paper, 39, 1392-1398 (2007). IF 2.888; **Q1** (Physical Chemistry, Thermodynamics) DOI: 10.1016/j.jct.2007.03.005
36. **E. Badea** (corresponding author), D. D'Angelo, B. Brunetti, Z. Rečkova, G. Della Gatta, Odd-even effect in melting properties of twelve alkane- $\alpha,\omega$ -diamides, *J. Chem. Thermodyn.* 38, 1546-1552 (2006). IF 2.888; **Q1** (Physical Chemistry, Thermodynamics) DOI: 10.1016/j.jct.2006.04.004
37. G. Della Gatta, T. Usacheva, **E. Badea**, B. Pałecz, Thermodynamics of solvation of some small peptides in water at T = 298.15 K, *J. Chem. Thermodyn.* 38, 1054-1061 (2006). IF 2.888; **Q1** (Physical Chemistry, Thermodynamics) DOI: 10.1016/j.jct.2005.10.020
38. D. Ichim, P. Ciarlini, **E. Badea**, G. Della Gatta, Nonparametric methods to evaluate derivative uncertainty from small data sets. In: *Advanced Mathematical and Computational Tools in Metrology VII Book Series: Series on Advances in Mathematics for Applied Sciences*, Vol: 72, p. 306-309 (2006). DOI: 10.1142/9789812774187\_0038
39. G. Della Gatta, **E. Badea**, R. Ceccarelli, T. Usacheva, A. Mašić, Assessment of damage in old parchment by DSC and SEM, *J. Therm. Anal. Cal.* 82, 637-649 (2005). IF 2.731; **Q2** (Analytical Chemistry, Thermodynamics) Top 10 Most viewed articles (N°1), Section Chemistry, September to November 2005; DOI: 10.1007/s10973-005-0944-7
40. M. Corneanu, G. Marinescu, C. Băbeanu, **E. Badea**, P. Atyim, G. Corneanu, Humic acids action on some physiological processes in carnations grown in vitro, *Bulletin of the University of Agricultural Sciences and Veterinary Medicine*, 57, 49-52 (2002). p-ISSN 1454-2382
41. C. Băbeanu, G. Marinescu, **E. Badea**, Influence of some natural and synthetic growing factors on peroxidase system in leaves of greenhouse plants, *J. Environ. Prot. Ecol.* 5(1), 68-74 (2004). ISSN 1311-5065; IF 0.634 **Q4** (Environmental Sciences)
42. C. Băbeanu, **E. Badea**, G. Marinescu, The enzymatic activity as an indicator of the initial stage of the soil forming process, *J. Environ. Prot. Ecol.*, 4(1), 49-53 (2003). IF 0.634 **Q4**, ISSN 1311-5065
43. G. Marinescu, C. Băbeanu, **E. Badea**, E. Glodeanu, Growth and enzymatic response on tomatoes' seedlings and plants to CO<sub>2</sub> excess. *J. Environ. Prot. Ecol.*, 4(2), 393-397 (2003). ISSN 1311-5065; IF 0.634 **Q4** (Environmental Sciences)
44. C. Băbeanu, **E. Badea**, G. Marinescu, G. Ciobanu, Comparative investigation of the effect of humic acids and other synthetic and biological fertilizers. *J. Environ. Prot. Ecol.*, 4(2), 386-392 (2003). ISSN 1311-5065; IF 0.634 **Q4** (Environmental Sciences)
45. C. Băbeanu, N. Marin, **E. Badea**, G. Marinescu, Study of the enzymatic activity in re-cultivated mine spoils from lignite basin Rovinari-Romania. *J. Environ. Prot. Ecol.*, 2, 215-219 (2001). ISSN 1311-5065; IF 0.634 **Q4** (Environmental Sciences)
46. C. Băbeanu, N. Marin, **E. Badea**, G. Marinescu, E. Glodeanu, Characterization of some mine spoils resulted from lignite exploitations in coal basin Rovinari on main agro-chemical parameter basis, *J. Environ. Prot. Ecol.*, 2, 220-223 (2001). ISSN 1311-5065; IF 0.634 **Q4** (Environmental Sciences)

#### Peer-reviewed articles (journals indexed in International Databases)

47. E. Badea *et al.*, Leather selection and use: a panel discussion on the impact of conservators' choices, collective paper of the American Institute of Conservation Leather Discussion Group, the Book and Paper Group Annual, 2021
- 48.



49. C. Şendrea, M.-C. Micu, E. Hadîmbu, S. M. Păunescu, I. M. Caniola, M. Ignat, L. Miu, E. Badea, Micro DSC and NMR mouse studies of collagen–vegetable tannin interaction mechanism during leather making, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 561-566. ISSN: 2068 – 0783
50. M. Ignat, L. Miu, E. Hadîmbu, C. Şendrea, M.-C. Micu, S. M. Păunescu, I. M. Caniola, E. Badea, The influence of TiO<sub>2</sub> and nano-TiO<sub>2</sub> nanopowders in natural leather finishing for heritage or modern binding, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 501-506. ISSN: 2068 – 0783
51. Lucreţia Miu, Rodica Roxana Constantinescu, Alpaslan Durmuş Kaya, Emanuel Hadîmbu, Claudiu Şendrea, Maria-Cristina Micu, Simona Maria Păunescu, Iulia Maria Caniola, Elena Badea, Aspects regarding the effectiveness of volatile oils of the *Tanacetum vulgare* species in the conservation of heritage objects, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 513-518. ISSN: 2068 – 0783
52. L. Miu, M. Giurgincă, I.M. Caniola, M.-C. Micu, S.M. Păunescu, C. Şendrea, E. Badea, Chromatic assessment of newly manufactured leather and parchment for museum purposes, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 519-524. ISSN: 2068 – 0783
53. L. Miu, S.M. Păunescu, M.-C. Micu, I.M. Caniola, M. Ignat, C. Şendrea, E. Badea, Chemical and physico-mechanical characterizations of leather for restoration, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 525-530. ISSN: 2068 – 0783
54. O. Niculescu, C. Gaidău, E. Badea, L. Miu, D. Gurău, M. Berechet, Ecological approaches for protecting and perfuming natural sheepskin fur, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 225-230. ISSN: 2068 – 0783
55. O. Niculescu, C. Gaidău, E. Badea, L. Miu, D. Gurău, D. Simion, Special effect finish for bookbinding leather, Proceedings of the 8th International Conference on Advanced Materials and Systems (ICAMS 2020), Eds. Gh. Coara and L. Alexandrescu, Certex, Bucharest, 2020, p. 231-236. ISSN: 2068 – 0783
56. L. Miu, E. Badea, S. M. Paunescu, C. Sendrea, M.-C. Micu (Lupas), I.-M. Caniola, A. Moldovan, Parchment, the famous writing support: from ancient times to present, *Annals of the University of Oradea: Fascicle of Textiles, Leatherwork*, 21(2): 87-92 (2020), available at <https://doaj.org/article/72c0e93cae1c4f1993f68f4205e64ab2>
57. L. Miu, E. Badea, C. Şendrea, M.-C. Micu, S. M. Păunescu, I. M. Caniola, The behavior of sheep leather parchment to artificial ageing, *Leather and Footwear Journal*, 20(3): 313-322 (2020) DOI:10.24264/lfj.20.3.9
58. L. Miu, E. Badea, C. Sendrea, Characterization of new and artificially aged parchments, *Leather and Footwear Journal*, 20(2):197-204 (2020). DOI 10.24264/lfj.20.2.10
59. L. Miu, E. Badea, C. Sendrea, The behavior of sheep leather parchment to artificial ageing, *Leather and Footwear Journal*, 19 (4), 107-112 (2019). ISSN 1583 – 4433
60. C. Carsote, L. Kövari, C. Albu, Emanuel Hadîmbu, E. Badea, L. Miu, G. Dumitrescu, Bindings of rare books from the collections of the Romanian Academy Library - a multidisciplinary study, *Leather and Footwear Journal*, 18(4), 307-320 (2018).
61. C. Sendrea, L. Miu, M. Crudu, E. Badea, The influence of new preservation products on vegetable tanned leather for heritage object restoration, *Leather and Footwear Journal*, 17(1), 9-16 (2017). ISSN: 1583-4433
62. L. Miu, I. Lungu, M. Cutrubinis, E. Badea, I. Stanculescu, Preliminary characterisation of vegetable leather used in heritage bindery, Proceedings of the 6th International Conference on Advanced Materials and Systems (ICAMS 2016) DOI: 10.24264/icams-2016.v.5
63. E. Badea, C. Sendrea, C. Carsote, L. Miu, G. Della Gatta, Surface characterisation of parchments by thermal microscopy and unilateral NMR, Proceedings of the 6th International Conference on Advanced Materials and Systems (ICAMS 2016) DOI: 10.24264/icams-2016.v.1
64. C. Sendrea, E. Badea, I. Stanculescu, L. Miu, H. Iovu, Dose-dependent effects of gamma irradiation on collagen in vegetable tanned leather by mobile NMR spectroscopy, *Leather and Footwear Journal*, 15(3), 139-150 (2015). ISSN: 1583-4433
65. E. Badea, T. Usacheva, G. Della Gatta, The use of differential scanning calorimetry to characterise collagen deterioration in parchment, invited paper, *Rossiiskii Khimicheskii Zhurnal - Zhurnal Rossiiskogo Khimicheskogo Obshchestva im. D.I. Mendeleeva (Russian Chemistry Journal)*, V. 59 (1), 28-41 (2015).

66. F. Baratta, D. Zonari, G. Fazzina, S. Ravera, E. Badea, F. Dosio, P. Brusa, A comparative study of cytotoxicity, viability and calorimetric in vitro tests for the antineoplastic drugs gemcitabine, oxaliplatin, paclitaxel and topotecan, *Gazzetta Medica Italiana. Archivio per le Scienze Mediche, A Journal on Internal Medicine and Pharmacology*, 173(1-2), 1-12 (2014). ISSN 0393-3660, eISSN 1827-1812.
67. C. Sendrea, E. Badea, L. Miu, M. Ignat, H. Iovu, Unilateral NMR for damage assessment of vegetable-tanned leather. Correlation hydrothermal properties. Proceedings of the 5th International Conference on Advanced Materials and Systems, Editura Certex, Bucuresti, 2014, p. 555-560.
68. O. A. Miu, E. Badea, C. Carsote, S. Ciobanu, Automatic detection of collagen fibres shrinkage activity using  $\Sigma$ - $\Delta$  filtering. In Proceedings of the 5th International Conference on Advanced Materials and Systems, Certex, Bucharest, 2014, p. 539-542.
69. C. Carsote, P. Budrugaec, L. Miu, H.A. Karavana, E. Badea, Study of the environmental impact on vegetable tanned leather by thermal analysis. In Proceedings of the 5th International Conference on Advanced Materials and Systems (ICAMS 2014), Editura Certex, Bucuresti, 2014, p. 505-510.
70. E. Badea, V.P. Sommer Dorte, K. Mühlen Axelsson, G. Della Gatta, R. Larsen R. Standardised methods for damage ranking in parchment: from microscopic evaluation to collagen denaturation assessment, *e-Preservation Science*, 9, 97-109 (2012). ISSN 1854-3928, e-ISSN 1581-9280.
71. E. Badea, W. Vetter, I. Petroviciu, C. Carsote, L. Miu, M. Schreiner, G. Della Gatta, How parchment responds to temperature and relative humidity: a combined micro DSC, MHT, SEM and ATR-FTIR study, in Proceedings of 4th International Conference on Advanced Materials and Systems (ICAMS 2012), Certex, Bucharest, 2012, p. 487-492. ISSN 2068-0783
72. E. Badea, L. Miu, P. Budrugaec, M. Giurginca, A. Braghieri, G. Della Gatta, From visual assessment of damage to advanced physical-chemical investigations, *Leather and Footwear Journal*, 7(2), 8-11 (2007).
73. E. Badea, G. Marinescu, C. Babeanu, G. C. Corneanu, M. Corneanu, Effect of the inertial force on isoperoxidases pattern and activity in cucumis sativus hypocotyls and leaves, *Biochem Soc Trans* (2000) 28 (5): A400. CONFERENCE ABSTRACT; <https://doi.org/10.1042/bst028a400c>

#### **Peer-reviewed articles in BDI articles in Romanian journals**

74. E. Badea, M. Saczuk, G. Della Gatta, Advanced physical-chemical investigations of damage at various structural levels of collagen in parchments, *Annals of the University of Craiova, The Chemistry Series*, vol. XXXVIII, No. 2, 49-58 (2009).
75. C. Băbeanu, G. Marinescu, E. Badea, P. Chilom, The effect of the Cropmax biostimulator on the amino-acids accumulation in the tomato plants leaves, *Annals of the University of Craiova, The Chemistry Series*, vol. XXIX, 117-120 (2001).
76. G. Corneanu, C. Craciun, M. Corneanu, I. Rogoz, G. Marinescu, S. Rogoz, E. Badea, C. Băbeanu, V. Craciun, The effects of some stress factors in simulated extraterrestrial environment, *Analele Societatii Romane de Biologie Celulara*. 29, 42-43 (2001).
77. M. Corneanu, G. Corneanu, G. Marinescu, E. Badea, C. Băbeanu, E. Grigorescu, M. Zagnat, The protector effect of fatty oil from the *Nigella Sativa* seeds against an inertial force in *Cucumis Sativus*, *Acta Phytotherapica Romanica*, Anul VI, Nr 1-2, 88-90 (2001).
78. E. Badea, C. Băbeanu, C. Spirescu, E. Glodeanu, G. Ciobanu, The effects of Pennasoil treatment on morphological elements, some biochemical aspects and production date for *Cucumis sativus* green-house culture. *Annals of the University of Craiova, The Chemistry Series*, vol. XXVIII, 37-43 (2000).
79. C. Băbeanu, E. Badea, G. Marinescu, C. Spirescu, G. Ciobanu, Effect of accessory growth substance Cropmax on some oxidoreductases involved in growth and development of different culture plants. *Annals of the University of Craiova, The Chemistry Series*, vol. XXVIII, 75-79 (2000).
80. E. Badea, G. Marinescu, C. Băbeanu, M. Corneanu, G.C. Corneanu, Peroxidase isozymes in *Arachis hypogaea* in vivo culture under extreme environmental conditions *Current Problems in Cellular and Molecular Biology IV* (Ed. A. Ardelean), Risoprint Publ., Cluj-Napoca, Romania, p. 593-602 (1999). (Note: in 2002 the Journal changed its name to *Annals of the Romanian Society of Cellular Biology*).
81. M. Corneanu, G.C. Corneanu, G. Marinescu, C. Băbeanu, E. Badea, Biochemical and physiological modifications induced under the action of an inertial force and a quasi-null geomagnetic field in *Arachis hypogaea*. *Current Problems in Cellular and Molecular Biology IV*, Edit. Risoprint, Cluj-Napoca, p. 623-634 (1999) (Note: in 2002 the Journal changed its name to *Annals of the Romanian Society of Cellular Biology*).
82. C. Băbeanu., E. Badea, E. Glodeanu, G. Marinescu, C. Spirescu, Peroxidase system activity and chlorophyll content variation in *Lycopersicum Esculentum* leaves as response to fertilizer treatment, *Annals of the University of Craiova, The Chemistry Series*, vol. XXVIII, 88-93 (1999).

83. G. Marinescu, P. Chilom, E. Glodeanu, E. Badea, C. Băbeanu, Growth stimulants induced changes in amino-acids spectrum in *Cucumis sativus* leaves. *Annals of the University of Craiova, The Chemistry Series*, vol. XXVIII, 94-97 (1999).
84. E. Badea, C. Băbeanu, G. Marinescu, E. Glodeanu, Changes in activity of peroxidases during growth and fructifying of tomatoes treated with growth stimulant Cropmax, *Annals of the University of Craiova, The Chemistry Series*, XXVII, 46-49 (1998).
85. G.C. Corneanu, M. Corneanu, E. Badea, D. Bica, L. Cojocaru, Effect of different geomagnetic and geoelectrical field values on cells and plant tissues in vitro culture. *Roumanian J. Biophys.* 39, 131-134 (1998).
86. E. Glodeanu, Gh. Spirescu, C. Băbeanu, E. Badea, G. Marinescu, Effects of foliar fertilizers on free amino-acids spectrum from *Cucumis sativum* leaves, *Annals of the University of Craiova, The Chemistry Series*, vol. XXV, 47-50 (1997).
87. Gh. Poștaliu, E. Badea, C. Băbeanu, P. Chilom, G. Marinescu, Variation of carbohydrates and free amino-acids spectra from new hybrids *Cucumis melo* leaves, *Annals of the University of Craiova, The Chemistry Series*, vol. XXIV, 95-98 (1996).

#### Peer reviewed articles in International Conference Volumes

88. E. Badea, C. Carsote, L. Miu, G. Della Gatta, Damage assessment approaches for collagen-based artefacts – simple and advanced analysis. In “The Cultural Object: From Investigation to Restoration”. Postprint volume of the 6th International Seminar on Chemistry for the Conservation of Cultural Heritage (ETICCH 2019). Eds: E. Badea and A. Bernath. Oscar Print, Bucharest, 2019, p. 7-22. ISBN 978-973-668-503-3
89. P. Budrugaec, C. Carșote, A. Cucuș, E. Badea, L. Miu, Applications of thermal analysis methods in the investigation of cultural and historical objects manufactured from leather, *Proceeding Book of the 3rd International Leather Engineering Congress*, 21–22 May, Izmir, Turkey, 2015, p. 101-108. ISBN: 978-605-338-130-3.
90. E. Badea, L. Miu, C. Carsote, I. Petroviciu, R. Granziero, S. Perona, V. Cacchia, B. Pittari, C. Laurora, G. Della Gatta, A. Cucos, P. Budrugaec, A. Vitale Brovarone, Validazione di interventi di recupero conservativo di manufatti in pergamena. In *Lo Stato dell’Arte 12*, Nardini Editore, Florence, 2014, p. 463-470. ISBN:
91. E. Badea, P. Iacomussi, G. Rossi, A. Vitale Brovarone, M. Radis, G. Della Gatta, Studio e diagnosi dello stato di conservazione di pergamene antiche mediante sistemi innovativi di analisi multi spettrale. In *Lo Stato dell’Arte 10*, Nardini Editore, Florence, 293-298 (2012). ISBN 88-404-4219-7 [https://www lo-dellarte-10.nardinieditore.it/prodotto/](https://www.lo-dellarte-10.nardinieditore.it/prodotto/)
92. E. Badea, I. Petroviciu, C. Carsote, L. Miu, W. Vetter, M. Schreiner, G. Della Gatta, Studio dell’effetto di temperatura e umidità relativa sulla struttura e le proprietà della pergamena, e relazione con il deterioramento a lungo termine delle pergamene storiche. In *Lo Stato dell’Arte 10*, Nardini Editore, Florence, Italy, 299-305 (2012). ISBN 88-404-4219-7. [https://www lo-dellarte-10.nardinieditore.it/prodotto/](https://www.lo-dellarte-10.nardinieditore.it/prodotto/)
93. E. Badea, G. Della Gatta, Identifying environmentally sensitive parchment and leather by MHT and micro-DSC. In *Preservation of Parchment, Leather and Textiles, Book of Proceedings, 1st International Seminar and Workshop on Emerging Technology and Innovation for Cultural Heritage*, Bucharest, Romania, 24-26 September 2012, Eds. E. Badea, L. Miu, M. Iordanescu, Certex, Bucharest, p. 78-80. ISSN 978-973-1716-81-7.
94. A.O. Miu, V. Velican, S. Ciobanu, O. Grigore, E. Badea, Intellygent system for analysis and diagnostic of collagen-based artefacts. In *Preservation of Parchment, Leather and Textiles, Book of Proceedings, 1st International Seminar and Workshop on Emerging Technology and Innovation for Cultural Heritage*, Bucharest, Romania, 24-26 September 2012, Eds. E. Badea, L. Miu, M. Iordanescu, Certex, Bucharest, p. 57-61. ISSN 978-973-1716-81-7.
95. E. Badea, G. Della Gatta, T. Usacheva, A. Kurysheva, Effect of temperature and relative humidity on molecular to mesoscopic structures of parchment. In *Art’11, Proceedings of the 10th International Conference on nondestructive investigations and micro-analysis for the diagnostics and conservation of cultural and environmental heritage*, p.78-82, AIPnD, Brescia (2011).
96. E. Badea, L. Miu, P. Budrugaec, M. Giurginga, G. Della Gatta, Damage assessment oparchments. I. An innovative multidisciplinary approach and damage assessment of parchments. In: *Proceedings Book of the 1st International Conference on Advanced Materials and Systems*, Ed. L. Albu, Certex, Bucharest, Romania, p. 419-425 (2008).
97. E. Badea, L. Miu, P. Budrugaec, M. Giurginga, G. Della Gatta, Damage assessment of parchments. II Evaluation of historical parchments. In: *Proceedings Book of the 1st International Conference on Advanced Materials and Systems*, Ed. L. Albu, Certex, Bucharest, Romania p. 426-429 (2008).
98. E. Badea, A. Mašić, L. Miu, C. Laurora, A. Braghieri, S. Coluccia, G. Della Gatta, Protocolli chimico-fisici per la valutazione del deterioramento ambientale di pergamene antiche. In *Lo Stato dell’Arte 5*, Nardini Editore, Florence, Italy, p. 101-108 (2007). ISBN 978-88-404-4156-6. <https://www.nardinieditore.it/prodotto/stato-arte-5/>

99. R. Larsen, D.V. Poulsen, F. Juchauld, H. Jerosch, M. Odlyha, J. De Groot, T.J. Wess, C. Kennedy, E. Badea, G. Della Gatta, S. Boghosian, D. Fessas, Damage assessment of parchment: complexity and relations at different structural levels. In 14th ICOM-CC Preprints, James & James / Earthscan, London, UK, vol. 1, p. 199-208 (2005). ICOM-CC 14th Triennial Meeting: Preprints Volumes I and II | NHBS Academic & Professional Books
100. Mašić, E. Badea, R. Ceccarelli R, G. Della Gatta, S. Coluccia, Studio comparativo DSC e SEM di pergamene antiche e invecchiate artificialmente. In *Lo Stato dell'Arte 2*, Il prato, Padua, Italy, p. 52-61 (2004). ISBN 88-87243-94-8
101. E. Badea, G. Marinescu, M. Corneanu, G. Corneanu, Peroxidase isoenzymes pattern and total activity in *Arachis hypogaea* in vivo culture under conditions similar to extra-terrestrial environment, *Plant Peroxidase Newsletter* 14, 139-146 (1999). Peroxidase\_isoenzymes\_pattern\_and\_total (1).pdf
102. G. Marinescu, E. Badea, C. Băbeanu, E. Glodeanu, Peroxidase system from leaves of *Cucumis sativus* as marker of growth stimulant treatment, *Plant Peroxidase Newsletter* 15, 79-85 (1999). (99+) (PDF) Peroxidase system from leaves of *Cucumis sativus* as marker of growth stimulant treatment | Elena Badea - Academia.edu
103. E. Badea, E. Glodeanu, G. Marinescu, The natural accessory growth substances influence on plant peroxidase activity. In *Biochemistry and Physiology of Plant Peroxidases*, Eds. C. Obinger, B. Burner, R. Ebermann, C. Penel, H. Greppin, Genève, Switzerland, p. 303-308 (1996).
104. C. Glodeanu, E. Glodeanu, E. Badea, The *Monilinia laxa* and *Monilinia fructigena* fruit-tree parasite fungi peroxidase and polyphenoloxidase activity. In *Biochemistry and Physiology of Plant Peroxidases*, Eds. C. Obinger, B. Burner, R. Ebermann, C. Penel, H. Greppin, Genève, Switzerland, p. 328-333 (1996).
105. G. Marinescu, E. Glodeanu, E. Badea, Peroxidases spectrum development in plants treated with structured water. In *Biochemistry and Physiology of Plant Peroxidases*, Eds. C. Obinger, B. Burner, R. Ebermann, C. Penel, H. Greppin, Genève, Switzerland, p. 308-312 (1996).

#### Articles in National Conference Volumes

106. E. Badea and L. Miu, Implementarea și exploatarea rezultatelor cercetării științifice în practica restaurării și conservării moștenirii culturale. INREACH - Infrastructura dedicată științei patrimoniului din cadrul INCDEP București. Volumul proiectului complex IMPLEMENT (Implementation and exploitation of the scientific research results in the practice of restoration and conservation of cultural goods, grant no. PN-III-P1-1.2-PCCDI-2017-0878), in press.
107. C. Carșote, E. Badea, M. Georgescu, Studiul unui hrisov semnat de Radu Mihnea, din colecția Muzeului Național De Istorie A României, In: *Tradiție, Istorie, Armată - Sesiunea Națională de Comunicări Științifice*, ediția a VI a, Muzeul Militar Național "Regele Ferdinand I", 15-16 oct 2021, București, in press.
108. C. Carșote, I. Petroviciu, G. Lazăr, E. Badea, L. Miu, M. Georgescu, Investigarea unui document de secol XV prin metode complementare de analiza / Investigation of a 15th century document by complementary methods. In: *RESTITUTIO - Bilingual Conservation-restoration bulletin*, vol. 11, p. 129-138 Muzeul Satului "Dimitrie Gusti", București (2017) ISSN: 2065-2992 CONScience 2017 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
109. Bernath, I. Teodorescu, L. Miu, E. Badea, Evaluarea zonelor de prezervare într-un muzeu în aer-liber. *RESTITUTIO - Bilingual Conservation-restoration bulletin*, vol.11, p.115-124. Muzeul Satului "Dimitrie Gusti", București (2017) ISSN: 2065-2992
110. E. Badea, L. Miu, V. Dragomir, G. Onoiu, I. Anania, Utilitatea monitorizării microclimatului într-un muzeu în aer liber - Proiectul Inherit. In: *Restitutio - Bilingual Conservation-restoration bulletin*, vol. 11, p. 125 -131 Muzeul Satului "Dimitrie Gusti", București (2017) ISSN: 2065-2992
111. C. Carsote, I. Petroviciu, G. Lazar, E. Badea, L. Miu, M. Georgescu, Investigarea unui document emis de Cancelaria Moldovei în vremea lui Ștefan cel Mare din colecția MNIR. In: *Tradiție, Istorie, Armată - Sesiunea Națională de Comunicări Științifice*, ediția a IV a, Muzeul Militar Național "Regele Ferdinand I", 8-9 iunie 2017, București, p.289-298.
112. Z. Sebestyén, E. Badea, E. Jakab, C. Carșote, E. Barta-Rajnai, Z. Czégény, Thermal decomposition study of vegetable tanning agents and tanned leathers. In *Restitutio - Bilingual Conservation-restoration bulletin*, vol. 10 p. 256- Muzeul Satului "Dimitrie Gusti", București (2016). ISSN: 2065-2992 CONscience 2016 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
113. Daniela Ichim, Elena Badea, Cristina Carșote, Artificial ageing treatments of collagen-based materials: How significant they are? In *Restitutio - Bilingual Conservation-restoration bulletin*, vol. 10 p. 257- Muzeul Satului "Dimitrie Gusti", București (2016). ISSN: 2065-2992 CONscience 2016 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)



114. Elena Badea, Oana A. Miu, Ionut Bornoiu, Cristina Carșote, Ovidiu Grigore, Lucretia Miu, Petru Budrugaec, ImageMHT – A new portable equipment for the automatic determination of shrinkage activity of historical collagen-based materials. The case of some historical document from the Romanian Academy Library collection. In *RESTITUTIO - Bilingual Conservation-restoration bulletin*, vol. 10 p. 260-269, Muzeul Satului “Dimitrie Gusti”, București (2016). ISSN: 2065-2992 CONscience 2016 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
115. C. Carsote, C. Sendrea, I. Petroviciu, E. Badea, L. Miu, H. Iovu, Primum non nocere – In situ non-invasive diagnosis of historical parchment and leather. In: *Restitutio, Bilingual Conservation-restoration bulletin*, vol. 9, p. 54-63. Muzeul Satului “Dimitrie Gusti”, București (2015). ISSN 2065-2992. CONscience 2015 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
116. E. Badea, C. Carsote, I. Petroviciu, L. Miu, A. Vitale Brovarone, G. Della Gatta, Archival and library parchments across west and east Europe: evenness and oddities. In: *Restitutio, Bilingual Conservation-restoration bulletin*, vol. 9, p. 46-53. Muzeul Satului “Dimitrie Gusti”, București (2015), ISSN 2065-2992. CONscience 2015 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
117. H. M-Kiss, E. Badea, C. Carsote, L. Miu, Investigarea preliminară a unor artefacte din piele provenite din săpăturile arheologice din Cetatea Timișoara. In: *Restitutio, Bilingual Conservation-restoration bulletin*, vol. 8, 2014, p. 58-61. Muzeul Satului “Dimitrie Gusti”, București (2014), Bucharest, ISSN 2065-2992. CONscience 2014 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
118. C. Carșote, I. Petroviciu, L. Miu, E. Badea, Sistem inteligent pentru analiza și diagnoza obiectelor de patrimoniu pe bază de collagen, *Revista Română de Conservare și Restaurare a Cărții* vol 6, p.91-98. Biblioteca nationala a Romaniei (2013), Bucuresti. Arhiva - Biblioteca Nationala a Romaniei (bibnat.ro)
119. E. Badea, G. Della Gatta, L. Miu, C. Carșote, I. Petroviciu, R. Larsen, M. Odlyha, A. Braghieri, S. Benedetto, Damage assessment of historical parchments: a protocol for preventive conservation. *Restitutio, Bilingual Conservation-restoration bulletin*, vol. 5-6, p. 61-74. Muzeul Satului “Dimitrie Gusti”, București (2012), ISSN 2065-2992. CONscience 2012 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
120. M. Giurginca, E. Badea, L. Miu, The effect of polluting gases on some parchment spectral characteristics. *Restitutio, Bilingual Conservation-restoration bulletin*, vol. 5-6, p. 182-187. Muzeul Satului “Dimitrie Gusti”, București (2012), ISSN 2065-2992 CONscience 2012 – Muzeul National al Satului „Dimitrie Gusti” (muzeul-satului.ro)
121. L. Miu, M. Giurginca, P. Budrugaec, V. Plavan, E. Badea, Metode complexe de evaluare a degradării pieilor de patrimoniu și a pieilor etnografice. In: *Colocviul National de Istorie, Istoria Artei Decorative, Conservare-Restaurare și Relații Publice. Secțiunea Conservarea-Restaurare. Editii XII și XIII*, Muzeul National Cotroceni, București, p. 93-104 (2009), ISBN 978-973-0-06497-1.
122. L. Miu, E. Badea, V. Bocu, Protocol analitic privind propunerea unei fișe specifice de descriere a documentelor pe pergament conform rețelei europene IDAP. In: *Buletinul Muzeului Militar National “Regele Ferdinand I”, Seria Noua*. vol. 6, București, p. 446-452 (2008), ISSN 1584-921X.
123. E. Badea, G. Della Gatta, Assessment of thermal stability of collagen in parchment by DSC in excess water. In *Advanced Materials and Processes for Ecological Manufacturing of Leathers*, Performantica, Iași, Romania, p. 14-28 (2007).

#### **Book chapters - international publishers**

124. C. Carșote, E. Badea, Z. I. Baltă, I. Petroviciu, L. Miu, G. Lazar. Comparative study of two illuminated codices of the National Museum of Romanian History: The Nicodemus Tetraevangelion and Codex Altemberger. In *“Ink Corrosion-The Missing Links”*, Eds. G. Boudalis, P. Engel, E. Moussakova, F. Pinzari, J. Schirò and J. Vodopivec Tomažič, Verlag/Berger, Horn/Wien, 2021, p. 146-175. ISBN 978-3-85028-954-2  
[https://www.verlag-berger.at/listview?ssearch=1&search\\_stichwort=ink+corrosion](https://www.verlag-berger.at/listview?ssearch=1&search_stichwort=ink+corrosion)
125. E. Badea and C. Carsote, I segreti della pergamena del testamento di Marco Polo. In *“Il testamento di Marco Polo. IL documento, la storia, il contesto”*, Ed. T. Plebani, Edizioni Unicopli, Collana Miscellanea Marciana, Milano, 2019, p. 169-185. ISBN 978-88-400-2051-8
126. E. Badea and C. Carsote, I segreti della pergamena del testamento di Marco Polo/The secrets of the parchment containing Marco Polo’s will. In *“Ego Marcus Paulo volo et ordino. I segreti del Testamento di Marco Polo”*, Limited Edition Art Print, Ed. T. Plebani, Biblioteca Nazionale Marciana & Scrinium, Venezia, p. 246-271, 2017. ISBN 978-88-96364-04-8.  
<http://www.scrinium.org/it-it/Committenza/Biblioteca-Nazionale-Marciana/il-testamento-di-marco-polo#>
127. G. Della Gatta, E. Badea, Mašić A., Ceccarelli R. Structural and thermal stability of collagen within parchment: a mesoscopic and molecular approach. In *“Improved Damage Assessment of Parchment (IDAP) Collection and Sharing of Knowledge”*, Research Report No. 18, Office for Official Publications of the European Communities, Luxembourg, Belgium (2007) p. 89-98. ISBN 978-92-79-05378-8  
<https://publications.europa.eu/en/publication-detail/-/publication/0edae146-fe1f-4060-a0b1-506b19de9c8/language-en>



**Book chapters - national publishers**

- 128.C. Carșote, E. Badea, Gh. Niculescu, Tetraevanghelul Mănăstirii Florești - amprenta materialelor și roata culorilor/The Tetraevangelion of the Floresti Monastery – Materials Fingerprint and Colour Wheel. In Tetraevangheliarul Manastirii de la Floresti - Capodopera a artei caligrafierii și miniaturii în Moldova secolului XVI/ The Tetraevangelion of the Floresti Monastery - Masterpiece of the art of calligraphy and miniature in 16th century Moldova. Anastatic edition of the original digitized volume preceded by a bilingual introductory part, in Romanian and English, the National Museum of History of Romania (MNIR), Bucharest, 2021, p. 28-59.
- 129.C. Carșote, E. Badea, Z. I. Baltă, I. Petroviciu, L. Miu, Analize printre rânduri - despre materialele și tehnicile utilizate la realizarea Codexului Altemberger / Unveiling the secrets of Codex Altemberger: about the materials and techniques used. In: "Codex Altemberger. Primul cod de legi al sașilor din Sibiu". Anastatic edition, preceded by a bilingual introductory part, in Romanian and English (title page and editorial notes, contents, specialized critical studies with bibliography, all having correspondent in English), as well as the original digitized volume, National Museum of History of Romania (MNIR), Bucharest, 2019, p. 52-77 and 120-143. ISBN 978-973-0-29638-9
- 130.C. Carșote, Z. I. Baltă, E. Badea, L. Miu, Materialele utilizate la realizarea Tetraevangheliarului lui Nicodim de la Tismana sub lupa tehnicilor moderne de analiză / Materials in the Tetraevangelion of Nicodemus from Tismana under the magnifying lens of modern analysis techniques. In Tetraevanghelul sfântului cuvios Nicodim de la Tismana. / The Tetraevangelion of Saint Pious Nicodemus of Tismana. Anastatic edition with a bilingual introduction (in Romanian and English), focusing on a historical study and the physical-chemical evaluation of the materials used to make the religious book. The Ministry of Culture and National Identity. The National Museum of Romanian History. Magic Print, Onești, 2018, p. 72-122. ISBN 978-606-622-398-0
- 131.Elena Badea and Lucretia Miu, Povestea pergamentului. În "Patrimoniul muzeal și științele. O altă perspectivă", Muzeul Național de Istorie a României, București, 2016, p. 83-89. ISBN 978-973-0-22935-6
- 132.C. Carșote, E. Badea, I. Petroviciu, L. Miu, Suportul material al documentelor- despre mestesug și cunoaștere. În "Pergamentul...o poveste. Fata nevăzută a documentelor pe pergament emise de Cancelaria domnească în vremea lui Ștefan cel Mare". Coordinatori: G. Dumitrescu and E. Badea, Editura Excelenta prin Cultura, București 2015, p. 37-55. ISBN 978-606-93840-1-5
- 133.L. Miu și E. Badea, Fabricarea pergamentului. În "Pergamentul...o poveste. Fata nevăzută a documentelor pe pergament emise de Cancelaria domnească în vremea lui Ștefan cel Mare". Coordinatori: G. Dumitrescu and E. Badea, Editura Excelenta prin Cultura, București 2015, p. 30-36. ISBN 978-606-93840-1-5
- 134.E. Badea, Scripta...volant? În "Pergamentul...o poveste. Fata nevăzută a documentelor pe pergament emise de Cancelaria domnească în vremea lui Ștefan cel Mare". Coordinatori: G. Dumitrescu and E. Badea, Editura Excelenta prin Cultura, București 2015, p. 77-83. ISBN 978-606-93840-1-5

**Conference volumes as editor**

- 135.The Cultural Object: from Investigation to Restoration, eBook of Abstracts of the 6th International Seminar and Workshop on Emerging Technology and Innovation for the Conservation of Cultural Heritage (ETICCH 2019), Eds. E. Badea and A. Bernath, Oscar Print Publishing House, Bucharest (2019). ISBN 978-973-668-503-3
- 136.Book of Abstracts of the 5th International Congress on Chemistry for Cultural Heritage, Eds.: E. Badea and I. Petroviciu, Editura Muzeul Literaturii Române, București, 2018, ISBN 978-973-167-463-6.
- 137.Organic Artefacts: From Research to Exhibition, Book of Abstracts of the 5th International Seminar and Workshop on Emerging Technology and Innovation for Cultural Heritage (ETICH 2017), Eds. E. Badea and A. Bernath, Oscar Print Publishing House, Bucharest (2017). ISBN 978-973-668-463-0.
- 138.Advanced Technology for Diagnosis, Preservation and Management of Historical and Archaeological Parchment, Leather and Textile Artefacts, Book of Abstracts of the 3rd International Seminar and Workshop on Emerging Technology and Innovation for Cultural Heritage (ETICH 2014), Eds. E. Badea, I. Petroviciu, A. Bernath, Certex Publishing House, Bucharest (2014). ISBN 978-973-1716-85-5.
- 139.Preservation of Parchment, Leather and Textiles, Proceedings Book of the 1st International Seminar and Workshop on Emerging Technology and Innovation for Cultural Heritage (ETICH), Eds. E. Badea, L. Miu, M. Iordanescu, Certex, Bucharest (2012). ISBN 978-973-1716-81-7.
- 140.Book of Abstracts of the International Seminar and Workshop Conservation and Restoration of Parchments, 3-5 Sept, Turin, Italy, Eds. E. Badea and G. Della Gatta, printed by Civico Centro Stampa, Turin, Italy (2008).
- 141.E. Badea and D.V. Poulsen Sommer, Conservation and Restoration of parchments - Workshop Guidelines, Conservazione e Restauro delle Pergamene – Manuale del Workshop, Editura Civico Centro Stampa, Torino, Italia (2008).