

SELECTED PUBLICATIONS LIST

Dr. Cristina M. Muntean

ARTICLES IN ISI JOURNALS

1. N. Toşa, N. E. Dina, B. I. Cozar, A. Coste, A. Halmagyi, M. Pârvu, **C. M. Muntean** (2025) "Structural characterization of DNA from *Allium* leaves and *E. coli* by surface-enhanced Raman spectroscopy (SERS)", *Analytical Letters* 58(14) 2533-2550.
2. **C. M. Muntean**, R. Ştefan, A. Tăbăran, A. Bende, A. Fălămaş, L. E. Olar (2024) "Characterization of the structural changes of the genomic DNA of *Staphylococcus aureus* due to femtosecond laser irradiation by Fourier transform infrared (FT-IR) spectroscopy", *Analytical Letters* 57(5), 711-726.
3. **C. M. Muntean**, D. Cuibus, S. Boca, A. Fălămaş, N. Toşa, I. A. Brezeştean, A. Bende, L. Barbu-Tudoran, R. Moldovan, E. Bodoki, C. Farcău (2023) "Gold vs silver colloidal nanoparticle films for optimized SERS detection of propranolol and electrochemical-SERS analyses", *Biosensors* 13, 530.
4. A. Fălămaş, D. Cuibus, N. Toşa, I. Brezeştean, **C. M. Muntean**, K. Milenko, E. Vereshchagina, R. Moldovan, E. Bodoki, C. Farcău (2023) "Toward microfluidic SERS and EC-SERS applications via tunable gold films over nanospheres", *Discover Nano* 18, 73.
5. N. E. Dina, **C. M. Muntean**, I. Bratu, A. Tican, A. Halmagyi, M. A. P. Purcaru, A. Coste (2022) "Structure and surface dynamics of genomic DNA as probed with surface-enhanced Raman spectroscopy: Trace level sensing of nucleic acids extracted from plants", *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 279, 121477, 1-7.
6. I. A. Brezeştean, N. Toşa, A. Fălămaş, D. Cuibus, **C. M. Muntean**, A. Bende, B. Cozar, C. Berghian-Groşan, C. Farcău (2022) "Silver nanoparticle films obtained by convective self-assembly for surface-enhanced Raman spectroscopy analyses of the pesticides thiabendazole and endosulfan", *Frontiers in Chemistry* 10, 915337, 1-14.
7. R. Moldovan, E. Vereshchagina, K. Milenko, B.-C. Iacob, A. E. Bodoki, A. Fălămaş, N. Toşa, **C. M. Muntean**, C. Farcău, E. Bodoki (2022) "Review on combining surface-enhanced Raman spectroscopy and electrochemistry for analytical applications", *Analytica Chimica Acta* 1209, 339250, 1-25.
8. **C. M. Muntean**, R. Ştefan, A. Tăbăran, C. Tripon, A. Bende, A. Fălămaş, L. M. Colobăţiu, and L. E. Olar (2021) "The influence of UV femtosecond laser pulses on bacterial DNA structure, as proved by Fourier transform infrared (FT-IR) spectroscopy", *ChemistrySelect* 6(27), 6957-6972.
9. **C. M. Muntean**, N. E. Dina, I. Bratu, C. Tripon, S. Niţu (Năstase) and A. Coste (2021) "Acidic pH-responsive changes of DNA structure and surface dynamics as probed with

ultrasensitive Raman spectroscopy”, *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 258, 119866.

10. **C. M. Muntean**, N. E. Dina, I. Bratu, A. Fălămaș, S. Nițu (Năstase), A. Halmagyi and A. Coste (2021) “Effects of femtosecond UV laser pulses on the structure and surface dynamics of medicinal plants DNA, monitored by surface-enhanced Raman spectroscopy”, *Journal of Molecular Structure* 1239, 130482.
11. **C. M. Muntean**, N. E. Dina, A. Tăbăran, A. M. R. Gherman, A. Fălămaș, L. E. Olar, L. M. Colobățiu and R. Ștefan (2021) “Identification of *Salmonella* serovars before and after ultraviolet light irradiation by Fourier transform infrared (FT-IR) spectroscopy and chemometrics”, *Analytical Letters* 54(1-2), 150-172.
12. **C. M. Muntean**, N. E. Dina, T.-L. Biter, I. Bratu, M. Coroș, C. Socaci and A. Coste (2020) „Surface dynamics of genomic DNAs upon lowering the pH, in the presence of graphene/AgNPs-based SERS detection platform”, *Journal of Molecular Modeling* 26(8): 211 (p. 1-9).
13. M. Hârța, O. Borsai, **C. M. Muntean**, N. E. Dina, A. Fălămaș, L. E. Olar, K. Szabo, D. Pamfil and R. Ștefan (2020) „Assessment of genetic relationships between *Streptocarpus x hybridus* V. parents and F1 progenies using SRAP markers and FT-IR spectroscopy”, *Plants (Basel)* 9(2), 160.
14. **C. M. Muntean**, N. E. Dina, M. Coroș, N. Toșa, A. I. Turza and M. Dan (2019) “Graphene/silver nanoparticles-based surface-enhanced Raman spectroscopy detection platforms: Application in the study of DNA molecules at low pH”, *Journal of Raman Spectroscopy* 50(12), 1849-1860.
15. **C. M. Muntean**, T.-L. Biter, I. Bratu, N. Toșa (2019) “Metallic surface dynamics of genomic DNA and its nitrogenous bases: SERS assessment and theoretical considerations”, *Journal of Molecular Modeling* 25(6), 162.
16. **C. M. Muntean**, I. Bratu, C. Tripon, K. Nalpantidis, M. A. P. Purcaru, V. Deckert (2017) “Molecular relaxation processes in nucleic acids components as probed with Raman spectroscopy”, *Revista de Chimie (Bucharest)* 68(10), 2471-2476.
17. C. Tripon, **C. M. Muntean**, I. Bratu, K. Nalpantidis, V. Deckert (2017) “(Sub)picosecond processes in DNA and RNA constituents: a Raman spectroscopic assessment”, *Polymer Bulletin* 74, 4087-4100.
18. **C. M. Muntean**, I. Bratu, A. Hernanz (2017) “Vibrational relaxation of the backbone and base modes in LacDNA complexes by UV resonance Raman spectroscopy”, *Journal of Physical Chemistry B* 121(28), 6909-6918.
19. N. E. Dina, **C. M. Muntean**, N. Leopold, A. Fălămaș, A. Halmagyi, A. Coste (2016) “Structural changes induced in grapevine (*Vitis vinifera* L.) DNA by femtosecond IR laser pulses: A surface-enhanced Raman spectroscopic study”, *Nanomaterials, Special Issue “DNA-Based Nanotechnology”* 6(6), 96.
20. C. Tripon, **C. M. Muntean**, E. Surducun, I. Bratu, A. Halmagyi, A. Coste (2016) “Structural response of genomic DNA from grapevine (*Vitis vinifera* L.) varieties to microwaves irradiation: a Fourier transform infrared spectroscopy assessment”, *Biomedical Spectroscopy and Imaging* 5(3), 295-312.

21. **C. M. Muntean**, N. Leopold, C. Tripon, A. Coste, A. Halmagyi (2015) "Surface-enhanced Raman spectroscopy of genomic DNA from *in vitro* grown tomato (*Lycopersicon esculentum* Mill.) cultivars before and after plant cryopreservation", *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 144, 107-114.
22. **C. M. Muntean**, I. Bratu, N. Leopold, C. Morari, L. Buimaga-Iarinca, M. A. P. Purcaru (2015) "Subpicosecond surface dynamics in genomic DNA from *in vitro*-grown plant species: A SERS assessment", *Physical Chemistry Chemical Physics* 17, 21323-21330.
23. C. Tripon, **C. M. Muntean**, L. Buimaga-Iarinca, A. Calborean (2015) "DFT investigation of the vibrational properties of AT base pairs in the presence of Ca^{2+} and Mn^{2+} ions", *Biomedical Spectroscopy and Imaging* 4(2), 189-196.
24. R. Stefan, **C. M. Muntean**, C. Tripon, A. Halmagyi, S. Valimareanu (2014) "UV degradation of genomic DNA from *in vitro* grown plant species: A Fourier transform infrared spectroscopic assessment", *Polymer Degradation and Stability* 108, 35-40.
25. C. Morari, **C. M. Muntean**, C. Tripon, L. Buimaga-Iarinca, A. Calborean (2014) "DFT investigation of the vibrational properties of GC Watson-Crick and Hoogsteen base pairs in the presence of Mg^{2+} , Ca^{2+} and Cu^{2+} ions", *Journal of Molecular Modeling* 20(4), 2220, 1-7.
26. A. Bende, **C. M. Muntean** (2014) "The influence of anharmonic and solvent effects on the theoretical vibrational spectra of the guanine-cytosine base pairs in Watson-Crick and Hoogsteen configurations", *Journal of Molecular Modeling* 20(3), 2113, 1-12.
27. **C. M. Muntean**, A. Lapusan, L. Mihaiu, R. Stefan (2014) "Strain dependent UV degradation of *Escherichia coli* DNA monitored by Fourier transform infrared spectroscopy", *Journal of Photochemistry and Photobiology B: Biology* 130, 140-145.
28. **C. M. Muntean**, M. Salehi, S. Niebling, B. Walkenfort (2013) "The influence of divalent metal ions on low pH induced LacDNA structural changes as probed with UV resonance Raman spectroscopy", *Journal of Raman Spectroscopy* 44(12), 1693-1699.
29. **C. M. Muntean**, N. Leopold, A. Halmagyi, S. Valimareanu (2013) "Surface-enhanced Raman scattering assessment of DNA from leaf tissues adsorbed on silver colloidal nanoparticles", *Journal of Raman Spectroscopy* 44(6), 817-822.
30. **C. M. Muntean**, R. Stefan, M. Bindea, V. Cozma (2013) "Fourier transform infrared spectroscopy of DNA from *Borrelia burgdorferi* sensu lato and *Ixodes ricinus* ticks", *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 110, 185-192.
31. **C. M. Muntean**, I. Bratu, D. Bogdan (2013) "Subpicosecond Processes in Nucleic Acids Bases Monitored by Raman Spectroscopy", *Biomedical Spectroscopy and Imaging* 2(1), 37-49.
32. C. Morari, D. Bogdan, **C. M. Muntean** (2012) "Binding effects of Mn^{2+} and Zn^{2+} ions on the vibrational properties of guanine-cytosine base pairs in the Watson-Crick and Hoogsteen configurations", *Journal of Molecular Modeling* 18(11), 4781-4786.
33. **C. M. Muntean**, I. Bratu, N. Leopold, M. A. P. Purcaru (2011) "Subpicosecond dynamics in DNA from leaves of *in vitro*-grown apple plants: A SERS study", *Spectroscopy-Biomedical Applications* 26(1), 59-68.

34. **C. M. Muntean**, I. Bratu, N. Leopold (2011) "Molecular relaxation processes in genomic DNA from leaf tissues: A surface-enhanced Raman spectroscopic study", *Spectroscopy-Biomedical Applications* 26(4-5), 245-254.
35. **C. M. Muntean**, N. Leopold, A. Halmagyi, S. Valimareanu (2011) "Surface-enhanced Raman spectroscopy of genomic DNA from *in vitro* grown plant species", *Journal of Raman Spectroscopy* 42(11), 1925-1931.
36. A. Bende, D. Bogdan, **C. M. Muntean**, C. Morari (2011) "Localization and anharmonicity of the vibrational modes for the GC Watson-Crick and Hoogsteen base pairs", *Journal of Molecular Modeling* 17(12), 3265-3274.
37. **C. M. Muntean**, N. Leopold, A. Halmagyi, S. Valimareanu (2011) "Surface-enhanced Raman spectroscopy of DNA from leaves of *in vitro*-grown apple plants", *Journal of Raman Spectroscopy* 42(4), 844-850.
38. **C. M. Muntean**, N. Leopold, A. Halmagyi, S. Valimareanu (2011) "Ultrasensitive detection of genomic DNA from apple leaf tissues, using surface-enhanced Raman scattering", *Spectroscopy-An International Journal* 25(1), 33-43.
39. **C. M. Muntean**, and I. Bratu (2009) "FT-Raman study of the (sub)picoseconds dynamics in genomic DNA from plant tissues", *Spectroscopy-An International Journal* 23(5-6), 281-289.
40. **C. M. Muntean**, I. Bratu, K. Nalpantidis, M. A. P. Purcaru (2009) "Subpicosecond dynamics in calf-thymus DNA, in the presence of Zn^{2+} ions: a Raman spectroscopic study", *Spectroscopy-An International Journal* 23(3-4), 141-154.
41. **C. M. Muntean**, K. Nalpantidis, I. Feldmann and V. Deckert (2009) " Zn^{2+} -DNA interactions in aqueous systems: a Raman spectroscopic study", *Spectroscopy-An International Journal* 23(3-4), 155-163.
42. **C. M. Muntean**, A. Halmagyi, M. D. Puia, and I. Pavel (2009) "FT-Raman signatures of genomic DNA from plant tissues", *Spectroscopy-An International Journal* 23(2), 59-70.
43. **C. M. Muntean**, and I. Bratu (2008) "Raman spectroscopic study on the subpicosecond dynamics in calf-thymus DNA, upon lowering the pH and in the presence of Mn^{2+} ions", *Spectroscopy-An International Journal* 22(6), 475-489.
44. **C. M. Muntean**, and I. Bratu (2008) "Molecular relaxation processes in calf-thymus DNA, in the presence of Mn^{2+} and Na^+ ions: a Raman spectroscopic study", *Spectroscopy-An International Journal* 22(5), 345-359.
45. **C. M. Muntean**, and I. Bratu (2007) "Molecular dynamics in calf-thymus DNA, at neutral and low pH, in the presence of Na^+ , Ca^{2+} and Mg^{2+} ions: a Raman microspectroscopic study", *Spectroscopy-An International Journal* 21(4), 193-204.
46. **C. M. Muntean**, R. Misselwitz and H. Welfle (2006) „The influence of Mn^{2+} on DNA structure in the presence of Na^+ ions: a Raman spectroscopic study", *Spectroscopy-An International Journal* 20(5-6), 261-268.
47. **C. M. Muntean**, R. Misselwitz, L. Dostál and H. Welfle (2006) " Mn^{2+} -DNA interactions in aqueous systems: a Raman spectroscopic study", *Spectroscopy-An International Journal* 20(1), 29-35.

48. **C. M. Muntean**, L. Dostál, R. Misselwitz and H. Welfle (2005) "DNA structure at low pH values, in the presence of Mn^{2+} ions: a Raman study" (2005) J. Raman Spectroscopy 36(11), 1047-1051.
49. C. I. Morari and **C. M. Muntean** (2003) "Numerical simulations of the Raman spectra of guanine-cytosine Watson-Crick and protonated Hoogsteen base pairs", Biopolymers 72(5), 339-344.
50. **C. M. Muntean**, G. M. J. Segers-Nolten (2003) "Raman microspectroscopic study of effects of Na(I) and Mg(II) ions on low pH induced DNA structural changes", Biopolymers 72(4), 225-229.
51. **C. M. Muntean**, G. J. Puppels, J. Greve, G. M. J. Segers-Nolten and S. Cinta Pinzaru (2002) "Raman microspectroscopic study on low pH-induced DNA structural transitions, in the presence of magnesium ions" J. Raman Spectroscopy 33(10), 784-788.
52. **C. M. Muntean**, G. J. Puppels, J. Greve and G. M. J. Segers-Nolten (2002) "The influence of Ca^{2+} cations on the low pH-induced DNA structural transitions", Biopolymers 67(4-5), 282-284.

ARTICLES IN OTHER REFEREED JOURNALS

1. **C. M. Muntean**, I. Bratu, B. Walkenfort, M. Salehi, S. A. Purcaru, A. Hernanz (2020) "Vibrational relaxation of functional groups in dAMP molecules probed with UV resonance Raman spectroscopy", Revista de Chimie (Bucharest), 71(1) 288-297.
2. **C. M. Muntean**, A. Ioachim, D. Moldoveanu (2007) "Microwave Absorption in Chromosomal DNA Molecules", Studia Universitatis Babeş-Bolyai, Physica LII(2), 23-34.
3. **C. M. Muntean**, Andrei Ioachim, Călina Cornea (2005), "Microwave absorption in plasmidic pBR322 DNA molecules", Studia Universitatis Babeş-Bolyai, Physica L(2), 3-10.
4. C. I. Morari and **C. M. Muntean** (2005) "Numerical simulation of the IR spectra of DNA bases", Romanian Journal of Physics 50(9-10), 1151-1156.
5. C. I. Morari, **C. M. Muntean** (2003) "Theoretical simulation of the Raman spectra of DNA bases", Studia Universitatis Babes-Bolyai, Physica XLVIII (Special Issue 2), 501-503.
6. **C. M. Muntean**, A. Ioachim, O. Cozar, D. Moldoveanu (2000) "Absorption Properties of DNA in a Microwave Field", Studia Universitatis Babes-Bolyai, Physica, XLV(2), 45-51.
7. **C.M. Muntean**, O. Cozar, G. Banciu, S. Pop (1997) "Microwave Absorption Spectroscopy of DNA Polymers in the Presence of Cu(II) Ions", Proceedings Supplement of Balkan Physics Letters 5, 211-214.

BOOKS, BOOK CHAPTER

AUTHOR

1. **Cristina M. Muntean** (2006) "STRUCTURAL AND DYNAMICAL ASPECTS OF DNA MOLECULE PUT INTO EVIDENCE BY SPECTROSCOPIC METHODS", Risoprint Publishing House, Cluj-Napoca, Romania, pp. 292 (ISBN: 973-751-217-0, 978-973-751-217-8).
2. **Cristina M. Muntean** (2007) "RAMAN SPECTROSCOPY OF DNA MOLECULE. APPLICATIONS AND PERSPECTIVES", Risoprint Publishing House, Cluj-Napoca, Romania, pp. 160 (ISBN: 978-973-751-576-6).
3. **Cristina M. Muntean** (2009) "DNA structure at low pH values, in the presence of monovalent and divalent metal ions, as revealed by Raman spectroscopy" Book Chapter in "INSIGHTS INTO VIBRATIONAL SPECTROSCOPY OF NUCLEIC ACIDS AND THEIR COMPLEXES", Editors **C. M. Muntean** & I. Bratu, Transworld Research Network Publishers, Trivandrum, Kerala, India, p. 67-86 (ISBN: 978-81-7895-407-3).

EDITOR

1. "INSIGHTS INTO VIBRATIONAL SPECTROSCOPY OF NUCLEIC ACIDS AND THEIR COMPLEXES" (2009) Editors **C. M. Muntean** & I. Bratu, Transworld Research Network Publishers, Trivandrum, Kerala, India, pp. 105, ISBN: 978-81-7895-407-3.

(Parts of) ISI PROCEEDINGS BOOKS

1. N. E. Dina Mircescu, **C.M. Muntean**, N. Leopold (2017) "Discrimination of grapevine genomic DNA using surface-enhanced Raman spectroscopy and PCA", 33rd Course of International School of Atomic and Molecular Spectroscopy on "Nano-optics: Principles enabling basic research and applications", July 4th-July 19th, 2015, Erice, Sicily, Italy. NATO Science for Peace and Security Series B: Physics and Biophysics, Series ISSN 1874-6500, Sub-series "Nano-Optics: Principles Enabling Basic Research and Applications", Baldassare Di Bartolo, John Collins, Luciano Silvestri Eds., Springer, Dordrecht, The Netherlands, pp. 499-500, Hardcover ISBN: 978-94-024-0848-5; Softcover ISBN 978-94-024-0869-0, eBook ISBN 978-94-024-0850-8.
2. A. Bende and **C. M. Muntean** (2012) "Solvent effect on the anharmonic vibrational frequencies in guanine-cytosine base pair", AIP Conf. Proc. 1425 (1) 5-8, PROCESSES IN ISOTOPES AND MOLECULES (PIM 2011) (29 September-1 October 2011, Cluj-Napoca, Romania) Editor(s): Mihaela D. Lazar (ISBN: 978-0-7354-1005-3).
3. **C. M. Muntean**, I. Bratu (2009) "(Sub)picosecond dynamics in MgDNA complexes upon lowering the pH: A Raman microspectroscopic study", Conference on the NATO Advanced Study Institute on Bio-Photonics: Spectroscopy, Imaging, Sensing, and

Manipulation (Ettore Majorana Foundation and Centre for Scientific Culture, Erice, Sicily, Italy, 2-17 July, 2009), Baldassare Di Bartolo & John Collins Eds., Springer, Dordrecht, The Netherlands (2011) p. 413 (ISBN 978-94-007-0028-4).

4. **C. M. Muntean**, I. Bratu (2008) "Molecular dynamics in calf-thymus DNA, at low pH values, in the presence of Mn^{2+} ions: a Raman study", in Proceedings of the XXIst International Conference on Raman Spectroscopy (ICORS, 17th-22nd August 2008, London, United Kingdom), Robert Withnall and Babur Z. Chowdhry Chief Eds., IM Publications 2008, Chichester, United Kingdom, p. 886-887 (ISBN 978-1-906715-00-7).
5. **C. M. Muntean**, G. Banciu, O. Cozar, A. Ioachim (1999) "Microwave Response of DNA Polymers with Counterion Distribution", in "Spectroscopy of Biological Molecules: New Directions" (8th European Conference on the Spectroscopy of Biological Molecules, 29 August - 2 September 1999, Enschede, The Netherlands), J. Greve, G. J. Puppels and C. Otto Eds., Kluwer Academic Publishers, Dordrecht (1999), The Netherlands, p. 223-224 (ISBN 0-7923-5847-3).
6. **C. M. Muntean**, G. J. Puppels, J. Greve, G. M. J. Segers-Nolten, C. Otto (1999) "Raman Microspectroscopic Study on Low pH-Induced DNA Structural Transitions: 1. Changes in Base Electronic Structures and Base Pairing", in "Spectroscopy of Biological Molecules: New Directions" (8th European Conference on the Spectroscopy of Biological Molecules, 29 August - 2 September 1999, Enschede, The Netherlands), J. Greve, G. J. Puppels and C. Otto Eds., Kluwer Academic Publishers, Dordrecht (1999), The Netherlands, p. 221-222 (ISBN 0-7923-5847-3).
7. **C. M. Muntean**, G. J. Puppels, J. Greve, G. M. J. Segers-Nolten, C. Otto (1999) "Raman Microspectroscopic Study on Low pH-Induced DNA Structural Transitions: 2. Nucleoside Conformation, Backbone Geometry and PO_2^- Interaction", in "Spectroscopy of Biological Molecules: New Directions" (8th European Conference on the Spectroscopy of Biological Molecules, 29 August - 2 September 1999, Enschede, The Netherlands), J. Greve, G. J. Puppels and C. Otto Eds., Kluwer Academic Publishers, Dordrecht (1999), The Netherlands, p. 219-220 (ISBN 0-7923-5847-3).
8. **Cristina Muntean**, A. Ioachim, O. Petrean, "Evaluation of Microwave Absorption in DNA - Hydration Layer Systems", 6th European Conference on the Spectroscopy of Biological Molecules Proc. (3-8 September 1995, Villeneuve d'Ascq, France) J. C. Merlin, S. Turrell and J. P. Huvenne Eds., Kluwer Academic Publishers, Dordrecht (1995), The Netherlands, p. 333-334 (ISBN 0-7923-3628-3).
9. **Cristina Muntean**, N. Aldea, Monica Purcaru, "Dynamical Properties of DNA in a Microwave Field" in 5th International Conference on the Spectroscopy of Biological Molecules Proc., T. Theophanides, Jane Anastassopoulou, N. Fotopoulos Eds., Kluwer Academic Publishers, Dordrecht, The Netherlands (1993), p. 73-74 (ISBN 0-7923-2534-6).
10. **Cristina Muntean**, A. Ioachim, Calina Cornea, "Microwave Absorption in Plasmidic DNA Molecules" in 5th International Conference on the Spectroscopy of Biological Molecules Proc., T. Theophanides, Jane Anastassopoulou, N. Fotopoulos Eds., Kluwer Academic Publishers, Dordrecht, The Netherlands, 1993, p. 71-72 (ISBN 0-7923-2534-6).