

List of Publications (2011–Present)

中川研究室 Nakagawa Research Lab

(1) Academic papers, (2) Reviews, (3) Books, (4) Patents, and (5) Other materials

(1) Papers (* Corresponding author)

1. Chalermpong Saenjum*, Thanawat Pattananandecha, and **Kouichi Nakagawa***, “Antioxidative and Anti-inflammatory Phytochemicals and Related Stable Paramagnetic Species in Different Parts of Dragon Fruit,” *Molecules*, **26**(12), 3565 (2021). Doi: 10.3390/molecules26123565
2. **Kouichi Nakagawa***, Hayato Maeda, Yoshifumi Yamaya, and Yudai Tonosaki, “Maillard Reaction Intermediates and Related Phytochemicals in Black Garlic Determined by EPR and HPLC Analyses,” *Molecules*, **25**(19), 4578 (2020). Doi: 10.3390/molecules25194578
3. Chalermpong Saenjum*, Thanawat Pattananandecha, and **Kouichi Nakagawa***, “Detection of antioxidant phytochemicals isolated from *Camellia japonica* seeds using HPLC and EPR imaging,” *Antioxidants*, **9**(6), 493 (2020). doi:10.3390/antiox9060493
4. Aroonsri Priprem, Sucharat Limsitthichaikoon., **Kouichi Nakagawa**, and Vassana Netweera, “Development of topical oral antiinflammatory gel containing zanthoxylum limonella seed extracted: a preclinical study,” *Journal of Pharmaceutical Sciences & Emerging Drugs*, **8**:2 (2020). DOI: 10.37532/jpsed.2020.8(2).135
5. **K. Nakagawa***, S. Minakawa, and D. Sawamura, “Nondestructive evaluations of melanin-related compounds in the skin using permeability and electron paramagnetic resonance,” *Analytical Sciences*, **36**(7), 865-869 (2020). Doi: 10.2116/analsci.20P001 7月
6. Panyada Panyatip, Nutjaree Pratheepawanit Johns, Aroonsri Priprem, **K. Nakagawa**, and Ploenthip Puthongking*, “Effect of *N*-amide Substitution on Antioxidative Activities of Melatonin Derivatives,” *Scientia Pharmaceutica*, **88**, 3 (2020). doi:10.3390/scipharm88010003
7. Nara Nantararat, **K. Nakagawa**, R. Miyamoto, S. Chansakaow1, J. Sirithunyalug, and P. Leelapornpisid, “Free Radical Scavenging Capability of Various Defatted Sesame Seed Cakes and Hulls Using EPR Compared with In Vitro Testing and

- HPLC Analysis,” *Journal of Oleo Science*, **68**(12), 1279-1285 (2019). Doi: 10.5650/jos.ess19203
8. **K. Nakagawa***, S. Minakawa, and D. Sawamura, “X-band EPR spectroscopic investigation of seborrheic keratosis,” *Analytical Sciences*, **35**(9), 1027-1030 (2019). DOI: 10.2116/analsci.19P100
 9. **K. Nakagawa***, Wipawadee Yooon, and Chalermpong Saenjum, “EPR and HPLC investigation of pigments in Thai purple rice,” *Journal of Nutritional Science and Vitaminology*, **65**, S217-S221 (2019). (Supplement)
DOI: 10.3177/jnsv.65.S217
 10. 中川 公一, “重粒子照射によるスクロールと L-アラニンラジカルの EPR 測定と解析,” *RADIOISOTOPES (特集号 粒子ビームサイエンスの進歩と展望—HIMAC の成果を中心に)*, **68**, 239-245 (2019).
doi: 10.3769/radioisotopes.68
 11. S. Minakawa*, Y. Mastuzaki, **K. Nakagawa**, T. Kaneko, E. Akasaka, and D. Sawamura, “Two cases of ichthyosis and their EPR analyses of stratum corneum,” *Journal of Cutaneous Immunology and Allergy*, **2**, 84-86 (2019). Doi: 10.1002/cia2.12057
 12. **K. Nakagawa***, S. Minakawa, C. Itabashi, and D. Sawamura, “Investigation of paraffin-embedded basal cell carcinoma using electron paramagnetic resonance,” *Analytical Sciences*, **35**(3), 265-269 (2019). doi: 10.2116/analsci.18P367
 13. **K. Nakagawa***, Wipawadee Yooon, and Chalermpong Saenjum, “EPR and HPLC investigation of pigments in Thai purple rice,” *Journal of Oleo Science*, **67**(10), 1347-1353 (2018). doi: 10.5650/jos.ess18093
 14. **K. Nakagawa***, S. Minakawa, and D. Sawamura, “Melanin radicals in paraffin-embedded melanoma investigated using surface-type dielectric resonator for X-band EPR,” *Analytical Sciences*, **34**(7), 837-840 (2018). doi.org/10.2116/analsci.18P055
 15. P. Sangchart, P. Mahakunakorn, C. Nukulkit, A. Sadani, J-W. Chern, **K. Nakagawa**, J. R. Johns, and A. Priprem, “Synthesis and evaluation of succinoyl melatonin as a potential melatonin prodrug,” *Proceeding of the 8th International Conference on Nutrition and Physical Activity*, pp 14-18, The Empress International Convention Center, Chiang Mai, Thailand, December 10-13 (2017).

16. **K. Nakagawa***, S. Minakawa, D. Sawamura, and H. Hara, "Characterization of melanin radicals in paraffin-embedded malignant melanoma and nevus pigmentosus using X-band EPR and EPR imaging," *Analytical Sciences*, **33**(12), 1357-1361 (2017). doi: 10.2116/analsci.33.1357 **Hot Article Award**
17. **K. Nakagawa***, Kazuhiro Matsumoto, Nattakan Chaiserm, and Aroonsri Priprem, "X-band electron paramagnetic resonance investigation of stable organic radicals present under cold stratification in 'Fuji' apple seeds," *Journal of Oleo Science*, **66**(12), 1375-1379 (2017). doi: 10.5650/jos.ess17160
18. Y. Karakirova*, **K. Nakagawa**, and N. D. Yordanov, "Investigation of sugar irradiated with He, Ne and C ions for dosimetry purposes," *Bulg. Chemical Communications*, **49**(3), 629–634 (2017).
19. **K. Nakagawa*** and H. Maeda, "Investigating pigmented radicals in black rice using HPLC and multi-EPR," *Journal of Oleo Science*, **66**(5), 543–547 (2017). doi: 10.5650/jos.ess16245
20. **K. Nakagawa*** and H. Maeda, "EPR imaging and HPLC characterization of the pigment-based organic free radical in black soybean seeds," *Free Radical Research*, **51**(2), 187–192 (2017). doi: 10.1080/10715762.2017.1291940
21. **K. Nakagawa*** and B. Epel, "Investigating the distribution of stable paramagnetic species in an apple seed using X-band EPR and EPR imaging," *Journal of Oleo Science*, **66**(3), 315–319 (2017). doi: 10.5650/jos.ess16152
22. **K. Nakagawa***, H. Hara, and Ken-ichiro Matsumoto, "C ion and X-ray induced sucrose radicals investigated by CW EPR and 9 GHz EPR imaging," *Bulletin of the Chemical Society of Japan*, **90**(1), 30–33 (2017). doi:10.1246/bcsj.20160290
23. **K. Nakagawa***, A. Promjareet, A. Priprem, V. Netweera, and H. Hara, "Investigation of scavenging activities and distribution of paramagnetic species in *Zanthoxylum limonella* seeds," *Free Radical Research*, **50**(12), 1432–1440 (2016). doi: 10.1080/10715762.2016.1258117
24. **K. Nakagawa*** and H. Hara, "CW EPR and 9 GHz EPR imaging investigation of stable paramagnetic species and their antioxidant activities in dry shiitake mushroom (*Lentinus edodes*)," *Free Radical Research*, **50**(5), 523–529 (2016).

doi: 10.3109/10715762.2016.1150592

25. **K. Nakagawa***, S. Minakawa, D. Sawamura, and H. Hara, “Skin surface imaging of psoriasis vulgaris by using an electron paramagnetic resonance spin probe,” *Journal of Dermatological Science*, **81**(1), 71–73 (2016).
doi: 10.1016/j.jdermsci.2015.10.006
26. **K. Nakagawa*** and H. Hara, “Paramagnetic species and antioxidant properties in various shiitake mushroom investigated by continuous wave EPR and 9 GHz EPR imaging,” *Conference Proceedings of 7th Biennial Meeting of Society for Free Radical Research-Asia*, 7–16 (2015).
27. **K. Nakagawa***, “Development of an innovative 9 GHz EPR surface detection method and its application to non-invasive human fingers and nails investigation,” *Spectrochimica Acta Part A, Molecular & Biomolecular Spectroscopy*, **150**, 461–464 (2015). doi: 10.1016/j.saa.2015.05.065
28. **K. Nakagawa*** and H. Hara, “Investigation of radical locations in various sesame seeds by CW EPR and 9 GHz EPR imaging,” *Free Radical Research*, **49**(1), 1–6 (2015). doi: 10.3109/10715762.2014.967691
29. **K. Nakagawa*** and B. Epel, “Locations of radical species in black pepper seeds investigated by CW EPR and 9 GHz EPR imaging,” *Spectrochimica Acta Part A, Molecular & Biomolecular Spectroscopy*, **131**, 342–346 (2014). doi: 10.1016/j.saa.2014.04.100
30. **K. Nakagawa***, “Effects of low dose X-ray irradiation of eggshells on radical production,” *Free Radical Research*, **48**(6), 679–683 (2014).
doi: 10.3109/10715762.2014.900174
31. **K. Nakagawa***, K. Kobukai, and Y. Sato, “ESR investigation of sucrose radicals produced by 0.25–4.5 Gy doses of X-ray irradiation,” *Journal of Radiation Research*, **55**(4), 726–729 (2014). doi: 10.1093/jrr/rru018
32. Y. Sato, **K. Nakagawa***, and T. Takahashi, “Low dose dependence of sucrose radical generation,” Proceeding of the 5th International Symposium on Radiation Emergency, 39–41 (2014).
33. **K. Nakagawa***, S. Minakawa, and D. Sawamura, “Stratum corneum structure of psoriasis vulgaris investigated by EPR spin-probe method,” *Applied Magnetic*

Resonance, **44**, 941–948 (2013). doi: 10.1007/s00723-013-0453-y

34. **K. Nakagawa***, S. Minakawa, and D. Sawamura, “EPR spectroscopic investigation of psoriatic finger nails,” *Skin Research and Technology*, **19**, 450–453 (2013). doi: 10.1111/srt.12068
35. Y. Sueishi*, S. Iwamoto, K. Miyazono, S. Nakatani, and **K. Nakagawa**, “Macroscopic characterization of bilayer membranes composed of triglyceride and phosphatidylcholine investigated using high-pressure ESR spin probe technique,” *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, **415**, 262–267 (2012).
36. **K. Nakagawa***, Y. Ohba, B. Epel, and H. Hirata, “A 9 GHz EPR imager for thin materials: an application to surface detection,” *Journal of Oleo Science*, **61**(8), 451–456 (2012).
37. **K. Nakagawa***, S. Minakawa, and D. Sawamura, “Spectroscopic evidence of abnormal structure of *Psoriasis Vulgaris* stratum corneum,” *Journal of Dermatological Science*, **65**(3), 222–224 (2012).
Doi: 10.1016/j.jdermsci.2012.01.002
38. **K. Nakagawa*** and K. Anzai, “Stratum corneum lipid of hairless mouse investigated by electron paramagnetic resonance,” *Applied Magnetic Resonance*, **40**(4), 557–565 (2011). Doi: 10.1007/s00723-011-0238-0
39. **K. Nakagawa***, “Elucidated lipid structures of various human stratum corneum investigated by EPR spectroscopy,” *Skin Research and Technology*, **17**, 245–250 (2011). Doi: 10.1111/j.1600-0846.2010.00491

(2) Reviews

40. **K. Nakagawa***, Structural Analyses of Stratum Corneum using EPR and EPR Imaging with Stable Spin Probes, *Journal of Oleo Science*, **69**(1), 1-6 (2020).
Doi: 10.5650/jos.ess19223
41. **K. Nakagawa***, Y. Karakirova, and N. D. Yordanov, “Heavy-ion induced sucrose radicals investigated using EPR and UV spectroscopy,” *J. Radiation Research*, **56**(3), 405–412 (2015). doi: 10.1093/jrr/rru108

(3) Books

42. **K. Nakagawa***, “Skin Lipid Organization by Electron Paramagnetic Resonance,” Chapter 17, *Handbook of Cosmetic Science and Technology*, 5th edition, F. Dreher, E. Jungman, K. Sakamoto, and H. I. Maibach Eds., **CRC Press**, in press (2021). ISBN:
43. **K. Nakagawa***, “EPR imaging characterization of the pigment-based organic radicals in plant seeds,” Chapter 3, *Electron Magnetic Resonance Volume 50 - Applications in Physical Sciences and Biology*, Ashutosh K. Shukla Ed., Academic Press, 47-62 (2019). ISBN: 978-0-12-814024-6 August 28, 2019 (Total pages 224)
44. **K. Nakagawa***, “X-band EPR and EPR imaging investigation of sucrose radicals,” Chapter 4, *Electron Magnetic Resonance Volume 50 - Applications in Physical Sciences and Biology*, Ashutosh K. Shukla Ed., Academic Press, 63-82 (2019). ISBN: 978-0-12-814024-6 August 28, 2019 (Total pages 224)
45. 中川公一*, ” ESR 法,” 第 4 版 *現代界面コロイド化学の基礎* 原理・応用測定ソリューション, (社)日本化学会編, 丸善出版, 477-482 (2018). ISBN 978-4-621-30291-0 (Total pages 527)
46. **K. Nakagawa***, “X-band EPR and EPR imaging investigation of sucrose radicals,” Chapter 3, *Horizons in World Physics, Volume 293*, Editor: Albert Reimer, Nova Science Publishers, Inc., New York, 95-122 (2017). ISBN: 978-1-53612-511-5
47. **K. Nakagawa***, “Free radicals in non-irradiated and irradiated foods investigated by ESR and 9 GHz ESR imaging,” Chapter 8, *Electron Spin Resonance in Food Science*, Ashutosh Kumar Shukla Ed, Academic Press, 123-136 (2016). ISBN: 9780128054284
48. **K. Nakagawa***, “Structure of stratum corneum lipid studied by electron paramagnetic resonance,” Chapter 70, *Textbook of Aging Skin, 2nd edition*, Miranda A. Farage, Kenneth W. Miller, and Howard I. Maibach Eds, Springer Berlin Heidelberg, 725-734 (2016). ISBN: 978-3-642-27814-3 doi: 10.1007/978-3-642-27814-3
49. **K. Nakagawa***, Epel B, and Hara H, “EPR and 9 GHz EPR imaging of

paramagnetic species in pepper seeds,” Chapter 2, *Peppers: Harvesting Methods, Antioxidant Properties and Health Effects*, Editors: Beatrice Dawson, Nova Science Publishers, Inc., New York, 41–54 (2016). ISBN: 978-1-63484-839-8

50. **K. Nakagawa*** and D. Sawamura, “Psoriasis vulgaris investigated by electron paramagnetic resonance,” *Psoriasis: Types, Triggers and Treatment Strategies*, Chapter 5, Phillip B. Smith and Nathan C. Johnson Eds, Nova Science Publishers, Inc., New York, 143-164 (2013). ISBN 978-1-62618-584-5
51. **K. Nakagawa***, “Lipid structures of various stratum corneum investigated by electron paramagnetic resonance,” *Keratin: Structure, Properties and Applications*, Chapter 5, Renke Dullaart and Joao Mousques, Eds, Nova Science Publishers, Inc., New York, 113-131 (2012). ISBN 978-1-62100-336-6

(4) Patent (特許)

52. 中川公一「メラニン色素ラジカル測定装置」特許出願(特願) 2016-158210, 平成28年8月10日(2016), (特願2017-136585) 平成29年7月12日(2017). 特開2018-28534 (公開日: 2018年2月22日)
53. 中川公一「電子スピン共鳴装置」特許 5481651号(2014).

(5) Others (その他)

54. 中川 公一, “EPR と EPR イメージングを用いた皮膚メラニンラジカルに関する研究,” *電子スピンサイエンス*, **18(Autum)**, in press (2021).
55. 中川 公一, “第23回 ESR フォーラム研究会のご報告,” *オレオサイエンス*, **20(1)**, 39-40 (2020).
56. 中川 公一, “編集員会から,” *オレオサイエンス*, **20(1)**, 21 (2020).
57. 中川 公一, “第23回 ESR フォーラム研究会開催報告,” *電子スピンサイエンス*, **17(Autumn)**, 128 (2019).
58. 中川 公一, “第53回(平成30年度)日本油化学会 学会賞「電子スピン

- 共鳴法によるモデル膜挙動に基づく皮膚角層構造に関する研究」, *オレオサイエンス*, **19**(6), 237 (2019).
59. 中川 公一, “第23回ESRフォーラム研究会のお知らせ,” *電子スピンサイエンス*, **17**(spring), 73 (2019). 4/4/2019
60. 中川公一, “第一線の研究手法をタイの有能な次世代に伝える,” *さくらサイエンスプラン* 平成29年度一般公募コース報告書, 3 (2018). 国立研究開発法人 科学技術振興機構 平成30(2018)年9月.
61. 中川公一、大庭裕範, “メラノーマの診断簡便化に役立つ分析技術,” *展望とトピックス*, 日本分析化学会第67回年会, p. 28 (2018). 9/12~9/14
62. 中川公一、Analytical Sciences 注目論文: 2017年33巻12号、「EPRとEPRイメージングによる悪性黒色腫および母斑に内在するメラニンラジカルの特性化」 *分析化学*, 2018年67巻2号 p. 119.
63. 中川公一, “さくらサイエンスプラン 友情と感激 (111),” *週刊文教ニュース* (文部科学情報), 60-61 (2017). 平成29年12月11日
(中川公一, “さくらサイエンスプラン 活動報告書” *Facebook*, 10/21, 2017.)
64. 中川公一, 原 英之, 小川幸大, 松本謙一郎, “重粒子線照射で生ずるスクロースラジカルのESRイメージングによる画像解析,” 平成27年度 放射線医学総合研究所 重粒子線がん治療装置等共同利用研究報告書 (II. 物理・工学), 255-257 (2016).
65. 中川公一, 原 英之, 松本謙一郎, “重粒子線照射で生ずるスクロースラジカルのESRイメージングによる画像解析,” 平成26年度 放射線医学総合研究所 重粒子線がん治療装置等共同利用研究報告書 (II. 物理・工学), 383-385 (2015).
66. 中川公一, “In Vivo Oxygen Imaging Workshop 2014 参加報告,” *電子スピンサイエンス*, **12**, 113-114 (2014).
67. 中川公一, “関東支部 第2回油化学セミナー弘前,” *オレオサイエンス*, **13**(10), 502-503 (2013).
68. 中川公一, “北京で開催された APES 2012 紀行,” *電子スピンサイエンス*, **11**(20), 46-47 (2013).

69. 中川公一, “ラトローブ大学短期研修引率記, (Report of a short-term English training at La Trobe University),” 平成 24 年度 学生夏季短期海外研修報告書 弘前大学大学院 国際交流委員会報告書, 26-29 (2013).
70. 中川公一, “自己紹介,” 日本油化学会オレオマテリアル部会 メールマガジン 29 号 p. 13 (2012).
71. 中川公一, 松本謙一郎, “重粒子線照射によるスクロースのラジカルの ESR と ESR イメージング検討,” 平成 22 年度 放射線医学総合研究所 重粒子線がん治療装置等共同利用研究報告書 (II. 物理・工学), 175-176 (2011).