

CURRICULUM VITAE

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Affiliation

Norwegian Institute for Bioeconomy Research (NIBIO)

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Function: Senior scientist and department leader, Bioresources and Recycling Technologies

Education and degrees

- MSc (1988) Soil and Plant Sciences. Dept. of Microbiology, Agric. Univ. Norway.
- PhD (1994) in Microbiology. Dept of Biotechnological Sciences (IBF), Agric. Univ. Norway.
- HDR (Habilitation à Diriger des Recherches, French habilitation for senior scientists) (2001) Life Sciences, Université Henri Poincaré Nancy 1. France.

Professional experience

- Oct. 1994 - April 1996: Post-doc at Centre de Pédologie Biologique (CPB) – CNRS, Nancy, France. Human Capital and Mobility-grant (Marie Curie).
- April 1996 - March 1998: Project researcher, Dept. of Biotechnological Sciences, Agricultural University of Norway. Financed by the NKJ/Norwegian Research Council.
- April 1998 – May 2001: Researcher at CPB - CNRS, Nancy, France. EU-project: *An integrated approach for the phytoremediation of organic pollutants in the rhizosphere.*
- June 2001 – Nov. 2002: Researcher at CPB/LIMOS-CNRS, Nancy, France. EU-project: *Use of mycorrhizal fungi for phytostabilization of radio-contaminated environments.*
- Nov. 2002 – Sept. 2004: Researcher at Skogforsk (National Laboratory of Forest Research, Norway), National projects: *Carbon-dynamics in forest soil* and *Ecological effects of forest fire.*
- Oct. 2004 – Sept. 2005: Invited senior scientist at Laboratoire Pierre Süe, CNRS/CEA. National project: Toxicologie Nucléaire (Chemical and radiological toxicity of U to soil micro-organisms).
- Sept. 2005 - June 2015: Senior scientist at Bioforsk Soil and Environment, Norway.
- July 2015 – June 2023: Senior scientist at NIBIO, Environment and Natural Resources Dept.
- Since July 2023: Department leader, Department of Bioresources and Recycling Technologies.

Publications (62 articles in peer reviewed international journals, H-index, ISI: 40)

1. **Joner EJ**, Jakobsen I (1994). Contribution by two arbuscular mycorrhizal fungi to P uptake by cucumber (*C. sativus* L.) from ³²P-labelled organic matter during mineralization in soil. *Plant and Soil* 163, 203-209.
2. **Joner EJ** and Jakobsen I (1995) Uptake of ³²P from labelled organic matter by mycorrhizal and non-mycorrhizal subterranean clover (*Trifolium subterraneum* L.). *Plant and Soil* 172: 221-227.
3. **Joner EJ** and Jakobsen I (1995) Growth and extracellular phosphatase activity of arbuscular mycorrhizal hyphae as influenced by soil organic matter. *Soil Biology & Biochemistry* 27: 1153-1159.
4. **Joner EJ**, Magid J, Gahoonia TS and Jakobsen I (1995) Phosphorus depletion and activity of phosphatases in the rhizosphere of mycorrhizal and non-mycorrhizal cucumber (*Cucumis sativus* L.). *Soil Biology & Biochemistry* 27, 1145-1151.
5. Leyval C, Singh B R and **Joner EJ** (1995). Occurrence and infectivity of AM fungi in some Norwegian soils influenced by heavy metals and soil properties. *Water, Air and Soil Pollution* 84: 203-216.
6. **Joner EJ** and Leyval C (1997) Uptake of ¹⁰⁹Cd by roots and hyphae of a *Glomus mosseae/Trifolium subterraneum* mycorrhiza from soil amended with high and low concentrations of cadmium. *New Phytologist* 135: 353-360.
7. Criquet S, **Joner E**, Légize P, Leyval C (2000). Anthracene and mycorrhiza affect the activity of oxido-reductases in the roots and the rhizosphere of lucerne (*Medicago sativa* L.). *Biotechnology Letters* 22, 1733-1737.
8. **Joner EJ** (2000) The effect of long-term fertilization with organic or inorganic fertilizers on mycorrhiza-mediated P uptake in subterranean clover. *Biology & Fertility of Soils* 32, 435-440.
9. **Joner EJ** and Johansen A (2000) Phosphatase activity of external hyphae of two arbuscular mycorrhizal fungi. *Mycological Research* 104, 81-86.
10. **Joner EJ**, Briones R and Leyval C (2000) Metal binding capacity of arbuscular mycorrhizal mycelium. *Plant and Soil* 226, 227-234.
11. **Joner EJ**, Ravnskov S and Jakobsen I (2000) Arbuscular mycorrhizal phosphate transport under monoxenic conditions using radio-labelled inorganic and organic P. *Biotechnology Letters* 22, 1705-1708.
12. **Joner EJ**, van Aarle I and Vosatka M (2000) Phosphatase activity of extra-radical arbuscular mycorrhizal hyphae: A review. *Plant and Soil* 226, 199-210.
13. Criquet S, **Joner EJ** and Leyval C (2001) 2,7 Diaminofluorene is a sensitive substrate for detection and characterization of plant root peroxidase activities. *Plant Science* 161, 1063-1066.
14. **Joner EJ** and Leyval C (2001) Time-course of heavy metal uptake in maize and clover as affected by different mycorrhiza inoculation regimes. *Biology & Fertility of Soils* 33, 351-357.
15. **Joner EJ** and Leyval C (2001) Influence of arbuscular mycorrhiza on clover and ryegrass grown together in a soil spiked with polycyclic aromatic hydrocarbons. *Mycorrhiza* 10, 155-159.
16. **Joner EJ**, Johansen A, Loibner A, dela Cruz M A T, Szolar O J M, Portal J M and Leyval C (2001) Rhizosphere effects on microbial community structure, and dissipation and toxicity of PAH in spiked soil. *Environmental Science & Technology* 35, 2773-2777.
17. Tonin C, Vandenkoornhuysen P, **Joner EJ**, Straczek J and Leyval C (2001) Assessment of arbuscular mycorrhizal fungi diversity in the rhizosphere of *Viola calaminaria* and effect of these fungi on heavy metal uptake by clover. *Mycorrhiza* 10, 161-168.
18. **Joner EJ**, Corgié S, Amellal, N and Leyval C (2002) Nutritional constraints to PAH degradation in a simulated rhizosphere. *Soil Biology & Biochemistry* 34, 859-864.
19. Nielsen J S, **Joner EJ**, Declerck S, Olsson, S and Jakobsen I (2002) Phospho-imaging as a tool for visualisation and non-invasive measurement of P transport dynamics in arbuscular mycorrhiza. *New Phytologist* 154, 809-819.
20. **Joner EJ**, Leyval C (2003) Rhizosphere gradients of polycyclic aromatic hydrocarbon (PAH) dissipation in two industrial soils, and the impact of arbuscular mycorrhiza. *Environmental Science & Technology* 37, 2371-2375
21. **Joner EJ** and Leyval C (2003) Phytoremediation of organic pollutants using mycorrhizal plants ; a new aspect of rhizosphere interactions. *Agronomie* 23, 495-502.
22. Corgié, S, **Joner, EJ** and Leyval, C (2003) Rhizospheric degradation of phenanthrene is a function of proximity to roots. *Plant and Soil* 257, 143-150.
23. **Joner EJ**, Hirmann, D, Szolar O J H, Todorovic D, Leyval C, and Loibner A (2004) Priming effects on PAH degradation and ecotoxicity during a phytoremediation experiment. *Environmental Pollution* 128, 429-435.

24. Ekeberg D, Ogner G, Fongen M, **Joner EJ** and Wickstrøm T (2004) Determination of CH₄, CO₂ and N₂O in air samples and soil atmosphere by gas chromatography mass spectrometry, GC-MS. *Journal of Environmental Monitoring* 6, 621-623.
25. **Joner EJ**, Roos P, Jansa J, Frossard E, Leyval C and Jakobsen I (2004) Arbuscular mycorrhizal fungi do not transport radiocaesium from soil to plants. *Applied and Environmental Microbiology* 70, 6512-6517.
26. Quantin C, **Joner, EJ**, Portal J M, and Berthelin J (2005) PAH dissipation in a contaminated river sediment under oxic and anoxic conditions. *Environmental Pollution* 134, 315-322.
27. Chaudry Q, Blom-Zandstra M, Gupta S and **Joner EJ** (2005) Utilising the synergy between plants and rhizosphere microorganisms to enhance breakdown of organic pollutants in the environment. *Environmental Science and Pollution Research* 12, 34-48.
28. **Joner EJ**, Eldhuset T, Lange H and Frostegård Å (2005) Changes in the microbial community in a forest soil amended with aluminum *in situ*. *Plant and Soil* 275, 295-304.
29. **Joner EJ**, Leyval C, Colpaert J V (2006) Ectomycorrhizas impede phytoremediation of polycyclic aromatic hydrocarbons (PAHs) both within and beyond the rhizosphere. *Environmental Pollution* 142, 34-38.
30. **Joner EJ**, Munier-Lamy C and Gouget B (2007) Bioavailability and microbial adaptation to elevated levels of uranium in an acid, organic top soil forming on an old mine spoil. *Environmental Chemistry and Toxicology* 26, 1644-1648.
31. Dupré de Boulois H, **Joner EJ**, Leyval C, Jakobsen I, Chen B D, Roos P, Thiry Y, Rufyikiri G, Delvaux B and Declerck S (2008) Impact of arbuscular mycorrhizal fungi on uranium accumulation by plants. *Journal of Environmental Radioactivity* 99, 775-784.
32. Dupré de Boulois H, **Joner EJ**, Leyval C, Jakobsen I, Chen B D, Roos P, Thiry Y, Rufyikiri G, Delvaux B and Declerck S (2008) Role and influence of mycorrhizal fungi on radiocesium accumulation by plants. *Journal of Environmental Radioactivity* 99, 785-800.
33. Oughton DH, Hertel-Aas T, Pellicer E, Mendoza E and **Joner EJ** (2008) Neutron activation of engineered nanoparticles as a tool for tracing their environmental fate and uptake in organisms. *Environmental Toxicology & Chemistry* 27, 1883-1887.
34. Simon P, **Joner E** 2008. Conceivable interactions of biopersistent nanoparticles with food matrix and living systems following from their physicochemical properties. *Journal of Food and Nutrition Research* 47, 51-59.
35. Stone V, Nowack B, Baun A, van den Brink N, von der Kammer F, Dusinska M, Handy R, Hankin S, Hassellöv M, **Joner EJ** and Fernandes T F (2010) Nanomaterials for environmental studies: Classification, reference material issues, and strategies for physico-chemical characterisation. *Science of the Total Environment*, 408, 1745-1754.
36. Lapiéd E, Moudilou E, Exbrayat J-M, Oughton D H and **Joner EJ** (2010) Silver nanoparticle exposure cause apoptotic response in the earthworm *Lumbricus terrestris* (Oligochaeta). *Nanomedicine*, 5, 975-984.
37. Lapiéd E, Nahmani JY, Moudilou E, Chaurand P, Labille J, Rose J, Exbrayat J-M, Oughton DH, **Joner EJ** 2011. Ecotoxicological effects of an aged TiO₂ nanocomposite measured as apoptosis in the anecic earthworm *Lumbricus terrestris* after exposure through water, food and soil. *Environment International* 37, 1105-1110.
38. Bigorgne E, Foucaud L, Lapiéd E, Labille J, Botta C, Sirguy C, Falla J, Rose J, **Joner EJ**, Rodius F and Nahmani J (2011) Ecotoxicological assessment of TiO₂ byproducts on the earthworm *Eisenia fetida*. *Environmental Pollution* 159, 2698-2705.
39. Ševců A, El-Temsah Y S, **Joner EJ** and Černík M (2011) Oxidative stress induced in micro-organisms by zero-valent iron nanoparticles. *Microbes and Environments* 26, 271-281.
40. El-Temsah YS, **Joner EJ** 2012. Impact of Fe and Ag nanoparticles on seed germination and differences in bioavailability during exposure in aqueous suspension and soil. *Environmental Toxicology* 27, 42-49.
41. Coutris C, Hertel-Aas T, Lapiéd E, **Joner EJ** and Oughton DH (2012) Bioavailability of Cobalt and Silver Nanoparticles to the Earthworm *Eisenia fetida*. *Nanotoxicology* 6, 186-195.
42. Coutris C, **Joner EJ**, Oughton DH. 2012. Aging and soil organic matter content affect the fate of silver nanoparticles in soil. *Sci Tot Environ* 420, 327-333.
43. El-Temsah YS, **Joner EJ**. 2012. Ecotoxicological effects on earthworms of fresh and aged nano-sized zero-valent iron (nZVI) in soil. *Chemosphere* 89, 76-82.
44. El-Temsah YS and **Joner EJ** 2013. Effects of nano sized- zero-valent iron (nZVI) on DDT degradation in soil and its toxicity to collembola and ostracods. *Chemosphere* 92, 131-137.
45. El-Temsah YS, Oughton DH, **Joner EJ** 2013. Effects of nano-sized zero-valent iron on DDT degradation and residual toxicity in soil: a column experiment. *Plant and Soil*, 368, 189-200.

46. Nestby R, Krogstad T, **Joner E**, Vohník M. 2014. The effect of NP fertilization on European blueberry (*Vaccinium myrtillus* L.) development on cultivated land in mid-Norway. *Journal of Berry Research* 4, 147-157.
47. Schnug L, Ergon T, Jakob L, Scott-Fordsmand JJ, **Joner EJ**, Leinaas HP (2015) Responses of earthworms to repeated exposure to three biocides applied singly and as a mixture in an agricultural field. *Science of the Total Environment*, 505, 223-235.
48. El-Temsah YS, Sevcu A, Bobcikova K, Cernik M and **Joner EJ** (2016). DDT degradation efficiency and ecotoxicological effects of two types of nano-sized zero-valent iron (nZVI) in water and soil. *Chemosphere*, 144:2221-2228.
49. Carbone S, Hertel-Aas T, **Joner EJ** and Oughton DH (2016). Bioavailability of CeO₂ and SnO₂ nanoparticles evaluated by dietary uptake in the earthworm *Eisenia fetida* and sequential extraction of soil and feed. *Chemosphere* 162:16-22.
50. Calvache S, Espevig T, Andersen TE, **Joner EJ**, Kvalbein A, Pettersen T, et al. 2016. Nitrogen, phosphorus, mowing height, and arbuscular mycorrhiza effects on red fescue and mixed fescue / bentgrass putting greens. *Crop Science* 57:537-549.
51. Havranek I, Coutris C, Norli HR, Rivier PA, **Joner EJ** (2017). Uptake and elimination kinetics of the biocide triclosan and the synthetic musks galaxolide and tonalide in the earthworm *Dendrobaena veneta* when exposed to sewage sludge. *Environmental Toxicology and Chemistry*, 36, 2068-2073.
52. Hjorth R, Coutris C, Nguyen N, Sevcu A, Baun A, Gallego Urrea JA, **Joner EJ** (2017). Ecotoxicity testing and environmental risk assessment of iron nanomaterials for sub-surface remediation – Recommendations from the FP7 project NanoRem. *Chemosphere*, 182, 525-531.
53. Ševců A, El-Temsah YS, Filip J, **Joner EJ**, Bobčíková K, Černík M (2018). Zero-valent iron particles for PCB degradation and an evaluation of their effects on bacteria, plants, and soil organisms. *Environmental Science & Pollution Research*, 24, 21191-21202.
54. Piscitelli L, Mondelli D, Miano T, **Joner EJ** (2018). Effects of biochar as a component of green roof substrates on the filtering capacities for heavy metals and phenanthrene. *Environmental Science & Pollution Research*, 25, 2167-2174.
55. Svenningsen NB, Watts-Williams SJ, **Joner EJ**, Battini F, Efthymiou A, Cruz-Paredes C, Nybroe O, Jakobsen I (2018). Suppression of the activity of arbuscular mycorrhizal fungi by the soil microbiota. *ISME Journal*, 12, 1296-1307.
56. Kleiven M, Rosseland BO, Teien H-C, **Joner EJ**, Oughton DH (2018). Route of exposure has a major impact on uptake of silver nanoparticles in Atlantic salmon (*Salmo salar*). *Environmental Toxicology and Chemistry* 37, 2895-2903.
57. Rivier PA, Havranek I, Coutris C, Norli HR, **Joner EJ** (2019). Transfer of organic pollutants from sewage sludge to earthworms and barley under field conditions. *Chemosphere* 222, 954-960.
58. Medynska-Juraszek A, Rivier PA, Rasse D, **Joner EJ**. (2020). Biochar affects heavy metal uptake in plants through interactions in the rhizosphere. *Applied Sciences* 10, 5105.
59. Cruz-Paredes C, Diera T, Davey M, Rieckmann MM, Christensen P, Dela Cruz M, Laursen KH, **Joner EJ**, Christensen JH, Nybroe O, Jakobsen I (2021). Disentangling the abiotic and biotic components of amf suppressive soils. *Soil Biology and Biochemistry* 159:108305.
60. Lusher AL, Hurley R, Arp HPH, Booth AM, Bråte ILN, Gabrielsen GW, Gomiero A, Gomes T, Grøsvik BE, Green N, Haave M, Hallanger IG, Halsband C, Herzke D, **Joner EJ**, Kögel T, Rakkestad K, Ranneklev SB, Wagner M, Olsen MI. (2021). Moving forward in microplastic research: A norwegian perspective. *Environment International* 157:106794.
61. Rasse DP, Weldon S, **Joner EJ**, Joseph S, Kammann CI, Liu X, O'Toole A, Pan G, Kocatürk-Schumacher NP. (2022). Enhancing plant N uptake with biochar-based fertilizers: Limitation of sorption and prospects. *Plant and Soil* 475: 213-236.
62. Weldon S, Rivier P-A, **Joner EJ**, Coutris C, Budai A. (2022). Co-composting of digestate and garden waste with biochar: Effect on greenhouse gas production and fertiliser value of the matured compost. *Environmental Technology*:1-22.

Also: 1 popular science book, 15 book chapters, 37 reports and other publications, 45 oral presentations and 27 posters at international meetings and conferences.

Miscellaneous

Section editor in *Plant and Soil*, Springer. Member of The Norwegian Scientific Committee for Food and Environment (VKM). Leader of Norwegian Soil Science Society.