## SEMINAL PAPERS IN SOIL ORGANIC MATTER

- Baldock, J.A. and J.O. Skjemstad. 2000. Role of the soil matrix and minerals in protecting natural organic materials against biological attack. Organic Geochemistry 31: 697-710.
- Balesdent, J., Mariotti, A., Guillet, B., 1987. Natural 13C abundance as a tracer for studies of soil organic matter dynamics. Soil Biology and Biochemistry 19, 25-30.
- Burdon, J. 2001. Are the traditional concepts of the structures of humic substances realistic? Soil Science 166: 752-769.
- Chenu, C., 1989. Influence of a fungal polysaccharide, scleroglucan, on clay microstructures. Soil Biology & Biochemistry 21, 299-305.
- Chenu, C., 1993. Clay- or sand-polysaccharides associations as models for the interface between microorganisms and soil: water-related properties and microstructure. Geoderma 56, 143-156.
- Cotrufo M.F., Soong J.L., Horton A.J., Campbell E.E., Haddix M.H., Wall D.L., Parton W.J. (2015) Soil organic matter formation from biochemical and physical pathways of litter mass loss. Nature Geosciences, doi:10.1038/ngeo2520.
- Fontaine, S., Barot, S., Barré, P., Bdioui, N., Mary, B. and Rumpel, C., 2007. Stability of organic carbon in deep soil layers controlled by fresh carbon supply. Nature, 450(7167), p.277.
- Guggenberger G, Zech W, Haumaier L, Christensen BT (1994) Land use effects on the composition of organic matter in particle-size separates of soils. II. CP-MAS 13 and solution C-NMR analysis. Eur J Soil Sci 46:147–158
- Hassink, J. (1997). "The capacity of soils to preserve organic C and N by their association with clay and silt particles." <u>Plant and Soil</u> 191: 77-87.
- Hedges, J.I. and J.M. Oades. 1997. Comparative organic geochemistries of soils and marine sediments. Organic Geochemistry 27: 319-361.
- Hedges, J.I., G. Eglinton, P.G. Hatcher, D.L. Kirchman, C. Arnosti, S. Derenne, et al. 2000. The molecularly-uncharacterized component of nonliving organic matter in natural environments. Organic Geochemistry 31: 945-958.
- Jenkinson DS (1966) The priming action. In The use of isotopes in soil organic matter studies. Report of the FAO/IAEA Technical Meeting, Brunswick-Voelkenrode, 9-14 Sep 1963. Pergamon Press, Oxford, pp. 199-208.
- Jenkinson DS (1977) Studies on the decomposition of plant material in soil. V. The effects of plant cover and soil type on the loss of carbon from 14C-labelled ryegrass decomposing under field conditions. J Soil Sci 28:424–434
- Kiem R, Kögel-Knabner I (2003) Contribution of lignin and polysaccharides to the refractory carbon pool as studied in C-depleted arable soils. Soil Biology & Biochemistry 35, 101-118.
- Kelleher, B.P. and Simpson, A.J., 2006. Humic substances in soils: are they really chemically distinct?. Environmental Science & Technology, 40(15), pp.4605-4611.
- Kogel-Knabner, I. (2002). "The macromolecular organic composition of plant and microbial residues as inputs to soil organic matter." <u>Soil Biology and Biochemistry</u> 34: 139-162.
- Kögel-Knabner I, Guggenberger G, Kleber M, Kandeler E, Kalbitz K, Scheu S, Eusterhues K, Leinweber P (2008) Organo-mineral associations in temperate soils: integrating biology,

mineralogy and organic matter chemistry. Journal of Plant Nutrition and Soil Science 171, 61-82.

- Kögel-Knabner I, Hatcher PG, Tegelaar EW, De Leeuw JW (1992) Aliphatic components of forest soil organic matter as determined by solid-state <sup>13</sup>C NMR and analytical pyrolysis. Science of the Total Environment 113, 89-106.
- Ladd JN, Foster RC, Nannipieri P, Oades JM (1996) Soil structure and biological activity. In: Bollag J-M, Stotzky G (Hrsg) Soil biochemistry, vol 9. Dekker, New York, pp 23–78
- Lehmann, J., Solomon, D., Kinyangi, J., Dathe, L., Wirick, S. and Jacobsen, C., 2008. Spatial complexity of soil organic matter forms at nanometre scales. Nature Geoscience, 1(4), p.238.
- Oades, J.M. and J.N. Ladd. 1977. Biochemical properties: carbon and nitrogen metabolism. In: Russell J.S. and G. E. L, editors, Soil Factors in Crop production in a Semi-arid Environment. University of Queensland Press, St. Lucia, Queensland.
- Oades, J. M. (1984). "Soil organic matter and structural stability: mechanisms and implications for management." <u>Plant and Soil</u> 76: 319-337.
- Oades, J.M. and Waters, A.G., 1991. Aggregate hierarchy in soils. Soil Research, 29(6), pp.815-828.
- Oades, J.M. 1988. The retention of organic matter in soils. Biogeochemistry. 5 35-70.
- Olah G-M, Reisinger O, Kilbertus G (1978) Biodégradation et humification. Atlas ultrastructural. Presses de l'université Laval, Quebec
- Piccolo, A. 2001. The supramolecular structure of humic substances. Soil Science 166: 810-832.
- Pronk GJ, Heister K, Ding G-C, Smalla K, Kögel-Knabner I (2012) Development of biogeochemical interfaces in an artificial soil incubation experiment; aggregation and formation of organomineral associations. Geoderma 189-190, 585-594.
- Puget, P., Chenu, C., Balesdent, J., 1995. Total and young organic carbon distributions in aggregates of silty cultivated soils. European Journal of Soil Science 46, 449-459
- Six, J., et al. (2002). "Stabilization mechanisms of soil organic matter: Implications for C-saturation of soils." <u>Plant and Soil</u> 241: 155-176.
- Sollins, P., P. Homann and B.A. Caldwell. 1996. Stabilization and destabilization of soil organic matter: Mechanisms and controls. Geoderma 74: 65-105.
- Tisdall JM, Oades JM (1982) Organic matter and water-stable aggregates in soils. J. Soil Sci. 33, 141–163.
- Torn, M.S., Trumbore, S.E., Chadwick, O.A., Vitousek, P.M. and Hendricks, D.M., 1997. Mineral control of soil organic carbon storage and turnover. Nature, 389(6647), p.170.
- Vogel C, Mueller CW, Höschen C, Buegger F, Heister K, Schulz S, Schloter M, Kögel-Knabner I (2014) Submicron structures provide preferential spots for carbon and nitrogen sequestration in soils. Nature Communications, 5:2947 | DOI: 10.1038/ncomms3947.
- Waksman SA (1938) Humus: origin, chemical composition and importance to nature. Baillière, Tindall & Cox, London

## **REVIEWS AND PERSPECTIVES ON SOIL ORGANIC MATTER:**

Christensen, B.T., 1992. Physical fractionation of soil and organic matter in primary particle size and density separates. In Advances in soil science (pp. 1-90). Springer, New York, NY.

- Christensen BT (2001) Physical fractionation of soil and structural and functional complexity in organic matter turnover. Eur J Soil Sci 52, 345–353
- Cotrufo M.F., Wallenstein M.D., Boot C., Denef K., Paul E., (2013) The Microbial Efficiency-Matrix Stabilization (MEMS) framework integrates plant litter decomposition with soil organic matter stabilization: Do labile plant inputs form stable soil organic matter? Opinion. Global Change Biology 19:988-995.
- Davidson, E.A. and Janssens, I.A., 2006. Temperature sensitivity of soil carbon decomposition and feedbacks to climate change. Nature, 440(7081), p.165.
- Janzen, H.H., 2006. The soil carbon dilemma: Shall we hoard it or use it?. Soil Biology and Biochemistry, 38(3), pp.419-424.
- Kleber, M., Eusterhues, K., Keiluweit, M., Mikutta, C., Mikutta, R. and Nico, P.S., 2015. Mineral– organic associations: formation, properties, and relevance in soil environments. In Advances in agronomy (Vol. 130, pp. 1-140). Academic Press.
- Lehmann, J. and Kleber, M., 2015. The contentious nature of soil organic matter. Nature, 528(7580), p.60.
- Schmidt, M.W., Torn, M.S., Abiven, S., Dittmar, T., Guggenberger, G., Janssens, I.A., Kleber, M., Kögel-Knabner, I., Lehmann, J., Manning, D.A. and Nannipieri, P., 2011. Persistence of soil organic matter as an ecosystem property. Nature, 478(7367), p.49.
- Sutton, R. and G. Sposito. 2005. Molecular structure in soil humic substances: The new view. Environmental Science & Technology 39: 9009-9015.
- Tisdall, J.M. and Oades, J., 1982. Organic matter and water-stable aggregates in soils. Journal of soil science, 33(2), pp.141-163.
- von Lützow, M., I. Kögel-Knabner, K. Ekschmitt, E. Matzner, G. Guggenberger, B. Marschner, et al. 2006. Stabilization of organic matter in temperate soils: Mechanisms and their relevance under different soil conditions - A review. Eur. J. Soil Sci. 57: 426-445.
- Wershaw, R.L. 2000. The Study of Humic Substances In Search of a Paradigm. In: E. A. Ghabbour and G. Davies, editors, Humic Substances Versatile Components of Plants, Soil and Water. The Royal Society of Chemistry, Cambridge, UK. p. 1-9.