

## ПЕРЕЧЕНЬ ЛИТЕРАТУРЫ

- [1] Senesi, N. (1990). *Analytica Chimica Acta*, 232, 51-75. Amsterdam, The Netherlands: Elsevier.
- [2] Vital electrolytes – Baker, W.E. (1973). *Geochimica et Cosmochimica Acta*, 37, 269-281.
- [3] Gamble, D.S., & Schnitzer, M. (1974). *Trace Metals and Metal-Organic Interactions in Natural Waters*. Ann Arbor, Mi: Ann Arbor Science.
- [4] Power of an electorlyte – Crile, G. (1926). *A bipolar theory of living processes*. New York: McMillan.
- [5] Decrease in electrical potential - Crile, G. (1926). *A bipolar theory of living processes*. New York: McMillan
- [6] Powerful electrolyte - Jackson, William R. (1993). *Humic, Fulvic and Microbial Balance: Organic Soil Conditioning*, 329. Evergreen, Colorado: Jackson Research Center.
- [7] *New Electronic Encyclopedia*. (1991). Photosynthesis. Grolier Electronic Publishing.
- [8] Donor and acceptor – Jackson, William R. (1993). *Humic, Fulvic and Microbial Balance: Organic Soil Conditioning*. Evergreen, Colorado: Jackson Research Center.
- [9] Donor and receptor - Rashid, M.A. (1985). *Geochemistry of marine humic substances*. New York: Springer-Verlag.
- [10] Donor, receptor - Sposito, G., Holtzclaw, K.M., LeVesque, C.S., & Johnston, C.T.(1982). Trace metal chemistry in arid-zone field soils amended with sewage sludge. II. Comparative study of the fulvic acid fraction. *Soil Science Society America Journal*, 46. 265-270.
- [11] Mineral complexes in fulvic may serve as electrodes – Rashid, M.A. (1985). *Geochemistry of marine humic substances*. New York: Springer-Verlag.
- [12] Free radical – Senesi, N. (1990) *Analytica Chmica Acta*, 232, 51-75. Amsterdam, The Netherlands: Elsevier.
- [13] Free radical – Senesi, N., Chen, Y., & Schnitzer, M. (1977b). The role of humic acids in extracellular electron transport and chemical determination of pH in natural waters. *Soil Biology and Biochemistry*, 9,397-403.
- [14] Oxidation reduction – Senesi, N., Chen, Y., & Schnitzer, M. (1977b). The role of humic humic acids in extracellular electron transport and chemical determination of pH in natural wates. *Soil Biology and Biochemistry*, 9, 397-403.
- [15] Dissolves metals and minerals – Ong, H.L., Swanson, V.D., & Bisque, R.E. (1970) *Natural organic acids as agents of chemical weathering (130-170)*. U.S. Geological Survey Professional Paper 700 c. Washington, DC: U.S. Geological Survey.
- [16] Enhance and transport nutrients – Christman, R.F., & Gjessing, E.T. (1983). *Aquatic and terrestrial humic materials*. The Butterworth Grove, Kent, England: Ann Arbor Science.
- Also: Prakash, A. (1971). Terrigenous organic matter and coastal phytoplankton fertility. In J.D. Costlow (Ed), *Fertility of the sea*, 2, 351-368. (Proceedings of an International Symposium on Fertilty of the Sea, Sao Paulo, Brazil, London, and New York: Gordon and Breach Science)
- [17] Enhance and transport nutrients – Prakash, A. (1971). *Fertility of the Sea*, 2, 351-368.
- [18] Williams, S. T. (1963). Are antibiotics produced in soil? *Pedobiologia*, 23, 427-435.
- [19] Stimulate growth - Konovona, M.M. (1966). *Soil organic matter*. Elmsford, NY: Pergamon.

- [20] All known vitamins in soil – Kononova, M. M. (1966). Soil organic matter. Elmsford, NY: Pergamon.
- [21] Many times its weight- Deb, B. C. (1949). The movement and precipitation of iron oxides in podzol soils. *Journal of Soil Science*, 1, 112-122.
- [22] Catalyzes enzyme reactions – Khristeva, L. A., Luk'Yanonko, M.V. (1962). Role of physiologically active substances in soil-humic acids, bitumens and vitamins B, C, P-P A and D in the life of plants and their replenishment. *oviet Soil Science*, 10, 1137-1141.
- [23] Fulvic and enzymes – Pardue, H.L, Townshend, A., Clere, J.T., VanderLinden (Eds.), (1990, May 1). *Analytica chimica Acta, Special Issue, Humic and Fulvic compounds*, 232 (1), 1-235. (Amsterdam, Netherlands: Elsevier Science Publishers)
- [24] Increase assimilation - Buffle
- [25] Low molecular weight, Aiken, G.R., McKnight, D.M., & VacCarthy, P. (1985). Humic substances of soil, sediment and water, New York: Wiley-Interscience.
- [26] Sensitize cell membranes- Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [27] Stimulte metabolism-Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [28] Genetic and growth - Jackson, William R. (1993). *Humic, Fulvic and Microbial Balance: Organic Soil Conditioning*, 538. Evergreen, Colorado: Jackson Research Center.
- [29] Oxygen is absorbed – Kononova, M.M. (1966). Soil organic matter. Elmsford, NY: Pergamon.
- [30] Rapid transport to shoots - Kononova, M.M. (1966). Soil organic matter. Elmsford, NY: Pergamon
- [31] Immune system – Syltic, P.W. (1985). Effects of very small amounts of highly active biological substances on plant growth. *Biological Agriculture and Horticulture*, 2, 245-269; and, *Research reports and studies*, Appropriate Technology Ltd. Dallas, TX: Murray Sinks II of ATL (Publisher).
- [32] Modify damage by toxic compounds – Christman, R.F., & Gjessing, E.T. (1983). *Aquatic and terrestrial humic materials*. The Butterworth Grove, Kent, England: Ann Arbor Science. Also: Prakash, A. (1971). Terrigenous organic matter and coastal phytoplankton fertility. In J.D. Costlow (Ed.), *Fertility of the sea*, 2, 351-368. (Proceedings of an International Symposium on Fertility of the Sea, Sao Paulo, Brazil, London, and New York: Gordon and Breach Science.)
- [33] Enviromental chemicals-
- [34] Paraquat - Fisher, A.M., Winterle, J.S., & Mill, T. (1967). Primary photochemical processes in photolysis mediated by humic substances. In R.G. Zika & W. J. Cooper (Eds). *Photochemistry of environmental aquatic system* (141-156). (ACS Sympoium Series 327). Washington DC: American Chemical Society.
- [35] Pesticides - Aiken, G.R., McKnight, D.M., & MacCarthy, P. (1985). *Humic substances os oil, sediment and water*. New York: Wiley-Interscience.
- [36] Radioactive properties - Szalay, A. (1958). The signifiicance of humus in the geochemical enrichment of uranium. *Proceedings of the 2nd International Conference on the Peaceful Uses of Atomic Energy*, 2, 12-186 (London: Pergamon)

- [37] Dissolves and weathers silica- Huang, W.H., & Deller, W.D. (1970). Dissolution of rock-forming silicate minerals in organic acids; simulated first-stage weathering of fresh mineral surfaces. *American Mineralogical Journal*, 55, 2076-2094.
- [38] Dissolves silica- Kodama, H., Schnitzer, M., & Jaakkimainen, M. (1983). Chlorite and biotite weathering by fulvic acid solutions in closed and open systems. *Canadian Journal of Soil Science*, 63, 619-629.
- [39] Transmutate or synthesis of new minerals - Schnitzer, M., Dodama, H. (1977). Reactions of minerals with soil humic substances. In J.B. Dixon & S.B. Weed (Eds.), *Minerals in soil environments* (Chap.21). Madison, WI: Soil Science Society of America.
- [40] See "The Fulvic Acid, Vegetal Silica Miracle" later in this report, and further documentation of Kervran, Louis C, *Biological Transmutations*.
- [41] Cell elongation - Poapst, P.A., & Schnitzer, M. (1971). Fulvic acid and adventitious root formation. *Soil Biology and Biochemistry*, 3, 215-219.
- [42] Enhance permeability of cell membranes – Christman, R.F., & Gjessing, E.T. (1983). *Aquatic and terrestrial humic materials*. The Butterworth Grove, Kent, England: Ann Arbor Science. Also: Prakash, A. (1971). Terrigenous organic matter and coastal phytoplankton fertility. In J.D. Costlow (Ed.), *Fertility of the sea*, 2, 351-368. (Proceedings of an International Symposium on Fertility of the Sea, Sao Paulo, Brazil, London, and New York: Gordon and Breach Science) low molecular weight, Aiken, G.R., McKnight, D.M., & VacCarthy, P. 1985). *Humic substances of soil, sediment and water*, New York: Wiley – Interscience.
- [43] Sensitizing agent – Prakash, A. (1971). Terrigenous organic matter and coastal phytoplankton fertility. In J.D. Costlow (Ed.), *Fertility of the sea*, 2, 351-368. (Proceedings of an International Symposium on Fertility of the Sea, Sao Paulo, Brazil, London, and New York: Gordon and Breach Science)
- [44] Increase metabolism of proteins – Christman, R.F., & Gjessing, E.T. (1983). *Aquatic and terrestrial humic materials*. The Butterworth Grove, Kent, England: Ann Arbor Science. Also: Prakash, A. (1971). Terrigenous organic matter and coastal phytoplankton fertility. In J.D. Costlow (Ed.), *Fertility of the sea*, 2, 351-368. (Proceedings of an International Symposium on Fertility of the Sea, Sao Paulo, Brazil, London, and New York: Gordon and Breach Science)
- [45] proteins, DNA, RNA – Khristeva, L.A., Soloche, K.I., Dynkina, R.L., Kovalenko, V.E., & Gorobaya, A.I. (1967). Influence of physiologically active substances of soil humus and fertilizers on nucleic acid metabolism, plant growth and subsequent quality of the seeds. *Humus et Planta*, 4, 272-276.
- [46] Proteins, DNA, RNA – Jackson, William R. (1993). *Humic, Fulvic and Microbial Balance: Organic Soil Conditioning*, 569-570. Evergreen, Colorado: Jackson Research Center.
- [47] Synthesis of RNA and DNA – Khristeva, L.A. (1968). About the nature of physiologically active substances of the soil humus and of organic fertilizers and their agricultural importance. In F.V. Hernando (Ed.), *Pontifica academec scientarium citta del vaticano* (701-721). New York: John Wiley.
- [48] Catalyst to vitamins within the cell – Williams, Dr. Roger J. (1977). *The Wonderful World Within You*. Bio-Communications Press. Wichita, Kansas.
- [49] Transport metal ions – Schnitzer, M., & Khan, S.U. (1972). *Humic substances in the environment* New York: Decker.
- [50] Acidity of fulvic acid – Schnitzer, M. (1977). Recent findings of the characterization of humic substances extracted from soils from widely differing climatic zones. *Proceedings of the Symposium on Soil Organic Matter Studies, Braunschweig* (117-131).

- [51] Environment with adequate oxygen – Schnitzer, M. (1977). Recent findings of the characterization of humic substances extracted from soils from widely differing climatic zones. *Proceedings of the Symposium on Soil Organic Matter Studies, Braunschweig* (117-131).
- [52] Low molecular weight – Aiken, G. R., McKnight, D.M., & MacCarthy, P. 1985). *Humic substances of soil, sediment and water*, New York: Wiley-Interscience.
- [53] Absorption by cells – Azo, S. & Sakai, I (1963). Studies on the physiological effects of humic acid. Part 1. Uptake of humic acid by crop plants and its physiological effects. *Soil Science and Plant Nutrition*, 9(3), 1-91. (Tokyo)
- [54] translocation of trace elements to leaf tissues – Aiken, G.R., McKnight, D.M., & MacCarthy, P. 1985). *Humic substances of soil, sediment and water*, New York: Wiley-Interscience.
- [55] Important for the health of plants – Christman, R.F., & Gjessing, E.T. (1983). *Aquatic and terrestrial humic materials*. The Butterworth Grove, Kent, England: Ann Arbor Science. Also: Prakash, A. (1971). Terrigenous organic matter and coastal phytoplankton fertility. In J.D. Costlow (Ed.), *Fertility of the sea*, 2, 351-368. (Proceedings of an International Symposium on Fertility of the Sea, Sao Paulo, Brazil, London, and New York: Gordon and Breach Science)
- [56] depleted minerals in soil – Senate Document #264.
- [57] Impossible to define- Vaughan, D., & Malcolm, R.E. (1985b). Soil organic matter and biological activity. *Plant and soil Science*, 16, 1-443. (Dordrecht, Netherlands: Martinus Nijhoff/Dr.W.Junk)
- [58] unable to be synthesized – not clearly defined. Murray, K., & Linder, P.W. (1983). Fulvic acids: Structure and metal binding. I. A random molecular model. *Journal of Soil Science*, 34, 511-523.
- [59] Unable to define – Senesi, N., Chen, Y., & Schnitzer, M. (1977b). the role of humic acids in extracellular electron transport and chemical determination of pH in natural waters. *Soil Biology and Biochemistry*, 9, 397-403.
- [60] Effect on total Earth environment – Buffle, J. (1988). *Complexation reactions in aquatic systems: An analytical approach*. Chichester: Horwood.
- [61] Transmutate or synthesis of new minerals – Schnitzer, M., & Dodama, H. (1977). Reactions of minerals with soil humic substances. In J.B. Dixon & S.B. Weed (Eds.), *Minerals in soil environments* (Chap. 21). Madison, WI: Soil Science Society of America.
- [62] See further studies on colloids in later sections of this report.
- [63] complex more metal – Rashid, M.A. (1971). Role of humic acids of marine origin and their different molecular weight fractions in complexing Di- and Triavalent metals. *Soil Science*, 111, 298-306.
- [64] Dissolves more metal – Hoffman, M.R., Yost, E.C., Eisenreich, S.J., & Mairer, W.J. (1981). Characterization of soluble and colloidal phase metal complexes in river water ultrafiltration. A mass balance approach. *Environmental Science Technology*, 15, 655.
- [65] Mineral levels in excess of their assumed dissolution ability – Kodama, H., Schnitzer, M., & Jaakkimainen, M. (1983). Chlorite and biotite weathering by fulvic acid solutions in closed and open systems. *Canadian Journal of Soil Science*, 63, 619-629.
- [66] Penetration of fulvic into plant cells – Prat, S., Smidova, M., & Cincero, A.L. (1961). Penetration and effect of humus substances (fractions) on plant cells. *International Congress of Biochemistry*, 5th (Abstract Commun. 329). (Moscow)

- [67] "free radical" - Senesi, N. (1990) *Analytica Chimica Acta*, 232, 51-75. Amsterdam, The Netherlands: Elsevier.
- [68] Vital electrolytes – Backer, W.E. (1973) *Geochimica et Cosmochimica Acta*, 37, 269-281.
- [69] Enhance and transport nutrients – Prakash, A. (1971). *Fertility of the Sea*, 2, 351-368.
- [70] Make water wetter – Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [71] Catalyze enzyme reactions – Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [72] Increase assimilation – Buffle, J. (1988). *Complexation Reactions in Aquatic Systems: An Analytical Approach*. Chichester: Horwood.
- [73] Stimulate metabolism – Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [74] Chelate...major and trace elements – Rashid, M.A. (1971). *Soil Science*, 111, 298-306.
- [75] Capacity for electrochemical balance – Senesi, N. (1990) *Analytica Chimica Acta*, 232, 51-75. Amsterdam, The Netherlands: Elsevier.
- [76] Essential to the process – Christman, R.F., & Gjessing, E.T. (1983). *Aquatic and Terrestrial Humic Materials*. The Butterworth Grove, Kent, England: Ann Arbor Science.
- [77] Essential to healthy plants – California Fertilizer Association. (1985). *Western Fertilizer Handbook*. Danville, IL: Interstate.
- [78] Same amount of time – Greenland, D.J., (1965). *Soils and Fertilizers*.35(5), 415-532.
- [79] Auxin type reactions – Wilkins, M.D. (Ed.). (1984). *Advanced Plant Physiology*. Marshfield, MA: Pitman.
- [80] Plant circulatory systems – Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer – Verlag.
- [81] Transpiration systems – Kononova, M.M. (1966). *Soil Organic Matter*. Elmsford, NY: Pergamon.
- [82] Deterioration – Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [83] Fibrous root growth – Kononova, M.M. (1966). *Soil Organic Matter*. Elmsford, NY: Pergamon.
- [84] Insect infestation – Salk, P.L., & Parker, L.W. (1986). *A New Agricultural Biotechnology: Potential Applications in Arid and Semi-Arid Zones*. American Association for the Advancement of Science and the Government of LaRioja, Argentina.
- [85] The Fulvic Miracle list – Jackson, William R. (1993). *Humic, Fulvic and Microbial Balance: Organic Soil Conditioning*. Evergreen, Colorado: Jackson Research Center.
- [86] Increase enzyme activity – Malcolm, R.D., & Vaughan, D. (1979). Comparative effects of soil organic matter fractions on phosphatase activities in wheat roots. *Plant and Soil*, 51, 117-126. Also: Mato, M.C., Gonzales-Alonso, L.M., & Mendez, J. (1972). Inhibition of enzymatic indoleacetic acid oxidation by fulvic acids. *Soil Biology and Biochemistry*, 4, 475-478.
- [87] Prevents wilting – Rashid, M.A. (1985). *Geochemistry of marine humic substances*. New York: Springer-Verlag.

- [88] Chemical weathering, Simonson, R.W. (1959). Outline of a generalized theory of soil genesis. Science Society America Proceedings, 23, 152-156.
- [89] Dissolves silica, Ponomareva, V.V., & Ragim-Zade, A.I. (1969). Comparative study of fulvic and humic acids as agents of silicate mineral decomposition. Society Soil Science, 1, 157-165. (Trans. From Pochvovedenic. (1969), 3, 26-36)
- [90] Who and What Are You? – Williams, Dr. Roger J. (1977). The Wonderful World Withing You. Bio-Communications Press. Wichita, Kansas.
- [91] And duplicates itself – Williams, Dr. Roger J. (1977). The Wonderful World Within You. Bio-Communications Press. Wichita, Kansas.
- [92] other nutritional factors – ibid.
- [93] extremely different types – ibid.
- [94] can produce only one – ibid.
- [95] disease we experience – ibid.
- [96] amino acids that attract insects – Chaboussou, F. (1980). Les Plantes Malades des Pesticides – Bases Nouvelles D'une Prevention Contre Maladies et Parasites. (Plants made sick by pesticides – New basis for the prevention of diseases and pests). Paris.
- [97] Catalyst to vitamins within the cell – Williams, Dr. Roger J. (1977). The Wonderful World Within You. Bio-Communications Press. Wichita, Kansas.
- [98] Mader, S.S. (1990). Biology (3rd edition). Dubuque, Ia: William C. Brown.
- [99] for complete metabolism – Williams, Dr. Roger J. (1977). The Wonderful World Within You. Bio-Communications Press. Wichita, Kansas.
- [100] maximum stimulation of enzyme development – Jackson, William R. PhD. (1993). Humic, Fulvic and Microbial Balance: Organic Soil Conditioning. Evergreen, Colorado.
- [101] enzyme reactions and formation – Jackson, William R. PhD. (1993). Humic, Fulvic and Microbial Balance: Organic Soil Conditioning. Evergreen, Colorado.
- [102] free radicals, Senesi, N. (1990). Molecular and quantitative aspects of the chemistry of fulvic acid and its interactions with metal ions and organic chemicals: Bari Italy. Analytica Chimica Acta, 232, 51-75. Amsterdam, The Netherlands: Elsevier.
- [103] Schlickewei, Dr. W., (1993). Arch Orthop Trauma Surg 112:275-279, Influence of humate on calcium hydroxyapatite implants.
- [104] W. Schlickewei, Dept. of Surgery (Traumatology), University Hospital, Freiburg, Germany
- [105] U.N. Riede, Dept. of Pathology, University Hospital, Freiburg, Germany. J. Yu, Dept. of Pathology, University Hospital, Freiburg, Germany. W. Ziechmann, Ground chemistry Research Group, University of Gorringen, Germany. E.H. Kuner, Dept. of Surgery (Traumatology), University Hospital, Freiburg, Germany. B. Seubert, Weyl Chemicals, Mannheim, Germany
- [106] dry beans - Bertrand, G. & G. Levy. The Content of Plants, Notably Food Plants, in Aluminum Compt. Rend. Acad. Sci. (Paris), 192 (1931), No. 9 pp. 525-529; Compt. Rend. Acad. Agr. France, 17 (1931), pp 235-238, (E.S.R.) 66, p.193.
- [107] definition of a colloid – Dorland's Illustrated Dictionary, 24th Edition.

- [108] definition of colloids – Random House Dictionary of the English Language, Current Edition
- [109] colloids and their size – Max Motyka, M.S., Albion Laboratories.
- [110] colloids – Lee, Royal, D.D.S. The Mineral Elements in Nutrition. The writings of Dr. Royal Lee. (Accredited as being one of the most respected men in the area of nutritional knowledge to have ever lived.)
- [111] Murray, K., & Linder, P.W. (1983). Fulvic acids: Structure and metal binding. I. A random molecular model. *Journal of soil Science*, 34, 511- 523
- [112] Rashid, M.A. (1971). *Soil Sciences*, 111, 298-306. Hoffman, M.R., Yost, E.C., Eiscncich, S.J., & Maier, W.J. (1981) *Environmental Science Tecnology*, 15, 655.
- [113] Ponomarcva, V.V., & Ragim-Zadc, A.I. (1969). Comparative study of fulvic and humic acids as agents of silicate mineral decomposition. *Society Soil Science*, 1, 157-165. (Trans. From *Pochvovedie*. (1969), 3, 26-36)
- [114] Rashid, M.A. (1985) *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.; Vaughn, D., Malcolm, R.E., & Ord, B.G. (1985) *Soil Organic Matter and Biological Activity*. (p. 77-108) Dordrecht, Netherlands: Martinus Nijhoff; Vaughn, D., Ord, B., & Malcolm, R.E. (198) *Journal of Experimental Botany*, 29, 1337-1344.
- [115] Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [116] Szalay, A. (1958). The significance of humus in the geochemical enrichment of uranium. *Preceedings of the 2nd International conference on the Peaceful Uses of Atomic energy*, 2, 182-186. (London: Pergamon)
- [117] Pauli, F.W. (1975). Heavy metal humates and their behavior against hydrogen sulfide. *Soil Science*, 119, 98-105.
- [118] Pillai, K.C., & Mathew, E. (1976). Plutonium in the aquatic environment: Its behavior, distribution and significance. In *Transuranium nuclides in the environment* (pp. 25-45). *Proceeding of the Sumposium*, International Atomic Energy Agency, Vienna.
- [119] Rashid, M.A. (1985). *Geochemistry of Marine Humic Substances*. New York: Springer-Verlag.
- [120] W.R. Jackson PhD. (1993) *Humic, Fulvic, and Microbal Balance: Organic Soil Conditioning* (pp. 762-763).