

- ADAM P., SCHMID J.C., MYCKE B., STRAZIELLE C., CONNAN J., HUC A., RIVA A. i ALBRECHT P. (1993): Structural investigation of nonpolar sulfur cross-linked macromolecules in petroleum. *Geochim. Cosmochim. Acta* **57**, 3395-3419.
- AIZENSHTAT, KREIN E.B., VAIRAVAMURTHY A. i GOLDSTEIN T.P. (1995): Role of Sulfur in the Transformations of Sedimentary Organic Matter: A Mechanistic Overview. *Geochemical Transformations of Sedimentary Sulfur*. (Eds. Vairavamurthy A. i Schoonen M.A.A.) 16-35. *Am. Chem. Society*, Washington.
- ALMENDROS G., GONZÁLEZ-VILA F.J., MARTIN F., SANZ J. i ÁLVAREZ-RAMIS C. (1998): Appraisal of pyrolytic techniques on different forms of organic matter from a Cretaceous basement in Central Spain. *Org. Geochem.* **28**, 613-623.
- ALTSCHULER Z.S., SCHNEPFE M.M., SILBER C.C. i SIMON F.O. (1983): Sulfur diagenesis in Everglades peat origin of pyrite coal. *Elsevier Science* **221**, 221-227.
- ANDERSON R., KATES M. i VOLCANI B.E. (1978): Identification of sulfolipids in non-photosynthetic diatom *Nitzschia alba*. *Biochim. Biophys. Acta* **528**, 89-106.
- ATKIN B.P., SOMERFIELD C. i LABAN K.L. (1995): A Method for the Assessment of the Mineral/Organic Matter Association of Trace Elements in Coal. *Coal Science*. (Eds. Pajares J.A. i Tascón J.M.D.) 187-190. *Elsevier Science*, Oviedo.
- BARBE A., GRIMALT J.O., PUEYO J.J. i ALBAIGÉS J. (1990): Characterization of model evaporitic environments though the study of lipid components. *Org. Geochem.* **16**, 815-828.
- BEHAR F. i PELET R. (1985): Pyrolysis-gas chromatography applied to organic geochemistry. Structural similarities between kerogens and asphaltenes from related rock extracts and oils. *J. Anal. Appl. Pyrol.* **8**, 173-187.
- BENSON A.A. (1963): The plant sulfolipid. *Adv. Lipid Res.* **1**, 387-394.
- BERKALOFF C., CASADEVALL E., LARGEAU C., METZGER P., PERACCA S. i VIRLET J. (1983) The resistant polymer of the walls of the hydrocarbon-rich alga *Botryococcus Braunii*. *Pytochem.* **22**, 389-397.

BERNER R.A. i RAISWELL R. (1984): Burial of organic carbon and pyrite sulfur in sediments over phanerozoic time: a new theory. *Geochim. Cosmochim. Acta* **47**, 855-862.

BERTRAND P. i LALLIER-VERGES E. (1993): Past sedimentary organic matter accumulation and degradation controlled by productivity. *Nature* **364**, 786-788.

BERTRAND P., LALLIER-VERGES E. i BOUSSAFIR M. (1994): Enhancement of accumulation and anoxic degradation of organic matter controlled by cyclic productivity: a model. *Org. Geochem.* **22**, 511-520.

BETTANY J.R., STEWART J.W.B. i SAGGAR S. (1979): The nature and forms of sulfur in organic matter fractions of soils selected along an environmental gradient. *Soil. Sci. Soc. Amer. J.* **43**, 981-985.

BETTANY J.R., SAGGAR S. i STEWART J.W.B. (1980): Comparison of the amounts and forms of sulfur in soil organic matter fractions after 65 years of cultivation. *Soil Sci. Soc. Amer. J.* **44**, 70-75.

BONET A.J., IBARRA J.V. i MOLINER R. (1995): Thermal Behaviour of Sulphur Forms in Spanish Low-Rank Coals. *Coal Science*. (Eds. Pajares J.A. i Tascón J.M.D) 1665-1668. Elsevier Science, Oviedo.

BROWN J.R., KASRAI M., BANCROFT G.M., WHITE C.M. i TAN K.H. (1992): Fingerprinting sulfur forms in coal and coal macerals using sulfur L-edge Xanes: Validation of classical methodology. *9th International Pittsburgh Coal Conference*, 89-93.

CALKINS W.H., TORRES ORDÓÑEZ R.J., JUNG B.J., GORBATY M.L., GEORGE G.N. KELEMEN S.R. (1992): Comparison of pyrolytic and X-ray Spectroscopic methods for determining organic sulfur species in coal. *Energy & Fuels* **6**, 411-413.

CALVERT S.E. i PEDERSEN T.F. (1992): Organic carbon accumulation and preservation in marine sediments: how important is anoxia?. *Organic Matter: Productivity, Accumulation, and Preservation in Recent and Ancient Sediments*. (Eds. Whelan J. i Farrington J.W) 231-263. Columbia University Press, U.S.A.

CAMPÀ A. (1993): Caracterització dels lignits d'Utrilles. Escola Universitària Politècnica de Manresa, [Projecte fi de carrera].

CASWELL S.A. (1983): Geochemistry and mineralogy of coal and coal-bearing strata from the Cannock Coalfield with special reference to chlorine. *Tesi doctoral.* Universitat de Sheffield.

CUESTA A., FERNÁNDEZ M.R., PASTOR J.M., MARTÍNEZ-ALONSO A. i TASCÓN J.M.D. (1995): Use of Carbon Science Concepts to Understand Coal Structure and Reactivity. *Coal Science.* (Eds. Pajares J.A., Tascón J.M.D.) 47-50. *Elsevier Science*, Oviedo.

CZECHOWSKI F. (1999): comunicació personal.

DANISHFAR P. (1995): Geoquímica orgànica de rocas madre de petróleo de Organyà. Escola Universitària Politècnica de Manresa, [Projecte fi de carrera].

DAVIDSON, R.M. (1994): Quantifying organic sulfur in coal. *Fuel* **73**, 988-1005.

DAVIS A., RUSSELL S.J., RIMER S.M. i YEAKEL J.D. (1984): Some genetic implications of silica and aluminosilicates in peat and coal. *International Journal of Coal Geol.* **3**, 293-314.

DE LAS HERAS F.X. (1991): Geoquímica orgànica de conques lacustres fòssils. (Ed. Riba A.O.) 295. *Institut d'Estudis Catalans*, Barcelona.

DERENNE S., LARGEAU C., CASADEVALL E., SINNINGHE DAMSTÉ J.S., TEGELAAR E.W. i DE LEEUW J.W. i BERKALOFF C. (1990): Characterization of Estonian Kukersite by spectroscopy and pyrolysis: Evidence for abundant alkyl phenolic moieties in an Ordovician, marine, Type II/I kerogen. *Org, Geochem.* **16**, 873-888.

DOUGLAS A.G., SINNINGHE DAMSTÉ J.S., FOWLER M.G., EGLINTON T.I. i DE LEEUW J.W. (1991): Flash pyrolysis of Ordovician kerogens: Unique distributions of hydrocarbons and sulphur compounds released from fossilized alga *Gloeocapsomorpha prisca*. *Geochim. Cosmochim. Acta* **55**, 275-291.

DOUGLAS A.G., SINNINGHE DAMSTÉ J.S., EGLINTON T.I., DE LEEUW J.W. i FOLER M.G. (1992): Distribution and structure of hydrocarbons and heterocyclic sulphur compounds released from four kerogens of Ordovician age by means of flash pyrolysis. *Early Organic Evolution. Implications for Mineral and Energy Resources* (Eds. M. Schidlowski, S. Golubic, M.M. Kimberley, D.M. McKirdy i P.A. Trudinger) 267-278. *Springer*, Berlin.

- EGLINTON T.I., SINNINGHE DAMSTÉ J.S., KOHNEN E.L. i de LEEUW J.W. (1990): Rapid estimation od the organic sulphur content of kerogens, coals and asphaltenes by pyrolysis-gas chromatography. *Fuel* **69**, 1394-1404.
- EGLINTON T.I., IRVINE J.E., VAIRAVAMURTHY A., ZHOU E. i MANOWITZ B. (1994): Formation and diagenesis of macromolecular organic sulfur in Peru margin sediments. *Org. Geochem.* , **22**, 781-799.
- FITZGERALD J.W. (1976): Sulfate ester formation and hydrolysis: a potentially important yet often ignored aspect of the sulfur cycle of aerobic soils. *Bacteriol. Rev.* **40**, 698-721.
- FRANK P., HEDMAN B., CARLSON R.M.K., TYSON T.A., ROE A.L. i HODGSON, K.O. (1987): A large reservoir of sulfate and sulfonate residues within plasma cells from *Ascidia ceratodes* revealed by x-ray absorption near-edge structure spectroscopy. *Biochem.* **26**, 4975-4976.
- FRENEY J.R., MELVILLE G.E. i WILLIAMS C.H. (1969): Extraction, chemical nature, and properties of soil organic sulphur. *J. Sci. Food Agric.* **20**, 440-445.
- FUKUSHIMA K., YASUKAWA M., MUTO N., UEMURA H. i ISHIWATARI R. (1992): Formation of C-20 isoprenoid thiophenes in modern sediments. *Org. Geochem.* **18**, 83-91.
- GE E. i WERT C. (1990): Spatial variation of organic sulfur in coal. *Geochemistry of Sulfur in Fossil Fuels*. (Eds. Orr W.L. i White C.M.) 317-325. *Am. Chem. Soc.*, Washington.
- GEORGE G.N. i GORBATY M.L. (1989): Sulfur K-Edge X-ray absorption spectroscopy of petroleum asphaltenes and model compounds. *J. Am. Chem. Soc.* **111**, 3182-3186.
- GLUSKOTER H.J. i LINDAHL P.C. (1973): Cadmium. Mode of occurrence in Illinois coals. *Elsevier Science* **181** 264-266.
- GODCHAUX W. III i LEADBETTER E.R. (1984): Sulfonolipids of gliding bacteria. *J. Biol. Chem.* **259**, 2982-2990.

GONZÁLEZ-VILA F.J., DEL RÍO J.C., ALMENDROS G. i MARTÍN F. (1994): Structural relationships between humic fractions from peat and lignites from the Miocene Granada basins. *Fuel* **73**, 215-221.

GORBATY M.L., KELEMEN S.R., GEORGE G.N. i KWIATEK P.J. (1991): Reactivity of oxidized organic sulfur forms in coals. *Abstracts of papers of the American Chemical Society* **202**, 57.

GORBATY M.L., KELEMEN S.R., GEORGE G.N. i KWIATEK P.J. (1992): Characterization and thermal reactivity of oxidized organic sulfur forms in coals. *Fuel* **71**, 1255- 1264.

GORCHS R., CATALAN C., CAMPÀ J., DANISHFAR P., CABRERA L. i DE LAS HERAS F.X. (1995): Origin and fate of sulphur in Spanish coals. *Coal Science*. (Eds. Pajares J.A., Tascón J.M.D.) 1657-1660. *Elsevier Science*, Oviedo.

GOTH K., DE LEEUW J.W., PUTTMANN W. i TEGELAAR E.W. (1989): Origin of Messel oil shale. *Nature* **336**, 759-761.

GOOSSENS H., DUE A., DE LEEUW J.W., VAN DER GRAFF B. i SCHENCK P.A. (1988): The pristane formation index a new molecular maturity parameter. A simple method to assess maturity by pyrolysis evaporation-gas chromatography of unextracted samples. *Geochim. Cosmochim. Acta* **52**, 1189-1193.

GRAY N.R., LANCASTER C.J. i GETHNER J. (1991): Chemometric analysis of pyrolysate compositions: A model for predicting the organic matter type of source rocks using pyrolysis-gas chromatography. *J. Anal. Appl. Pyrol.* **20**, 87-106.

GRIMALT J.O., YRUEDA I., SAIZ-JIMENEZ C., TOJA J., DE LEEUW J.W. i ALBAIGÉS J. (1991): Sedimentary lipid biogeochemistry of an hypereutrophic alkaline lagoon. *Geochim. Cosmochim. Acta* **55**, 2555-2577.

HARDING A.W., ELLYATT W.A.T. i THOMAS K.M. (1996): Xanes of sulphur in Carbons, chars and coals. *The European Carbon Conference Carbon 96* **2**, 517-518.

HARTGERS W.A., SINNINGHE DAMSTÉ J.S., DE LEEUW J.W., LING Y. i DYRKACZ G.R. (1994): Molecular characterization of two carboniferous coals and their constituting maceral fractions. *Energy & Fuels* **8**, 1055-1067.

HATCHER P.G. (1990): Chemical structural models for coalified wood (vitrinite) in low-rank coals. *Org. Geochem.* **16**, 959-701.

HATCHER P.G., LERCH H.E., KOTRA R.K. i VERHEYEN T.V. (1988): Pyrolysis g.c.-m.s. of a series of degraded woods and coalified logs that increase in rank from peat to subbituminous coal. *Fuel* **67**, 1069-1075.

HORSFIELD B. (1989): Practical criteria for classifying kerogens: Some observations from pyrolysis-gas chromatography. *Geochim. Cosmochim. Acta* **53**, 891-901.

HUFFMAN G.P., HUGGINS F.E., MITRA S., SHAH N., PUGMIRE R.J., DAVIS B., LYTLE F.W. i GREEGOR R.B. (1989): Investigation of the molecular structure of organic sulfur in coal by XAFS Spectroscopy. *Energy & Fuels* **3**, 200-205.

HUFFMAN G.P., MITRA S., HUGGINS F.E., SHAH N., VAIDYA S. i LU F. (1991): Quantitative analysis of all major forms of sulfur in coal by x-ray absorption fine structure spectroscopy. *Energy & Fuels* **5**, 574-581.

HUFFMAN G.P., SHAH N., HUGGINS F.E., LU F. i ZHAO J. (1993): Further sulfur speciation studies by sulfur K-edge XANES spectroscopy. *Processing and Utilization of High-Sulfur Coals*, 1-13.

HUXTABLE R.J. (1992): Physiological actions of taurine. *Physiolog. Rev.* **72**, 101-163.

KADOURI A., DERENNE S., LARGEAU C., CASADEVALL E. and BERKALOFF C. (1988): Resistant biopolymer in the outer walls of *Botryococcus braunii*, B. race. *Phytochem.* **27**, 551-557.

KEER J.I., MACLAREN R.G. i SWIFT R.S. (1990). Acetylacetone extraction of soil organic sulphur and fractionation using gel chromatography. *Soil. Biol. Biochem.* **22**, 97-104.

KENIG F. i HUC A. (1990): Incorporation of Sulfur into Recent Organic Matter in a Carbonate Environment (Abu Dhabi, United Arab Emirates). *Geochemistry of sulfur in fossil fuels*. (Eds. Orr W.L. i White C.M.) 170-185. *Am. Chem. Soc.*, Washington.

KOHNEN M.E.L., SINNINGHE DAMSTÉ J.S., TEN HAVEN H.L. i DE LEEUW J.W. (1989): Early incorporation of polysulfides in sedimentary organic matter. *Nature* **341**, 640-641.

KOTCHETKOV N.K. i SMIRNOVA G.P. (1986): Glycolipids of marine invertebrates. *Advances in Carbohydrate Chemistry and Biochemistry*, **44**, 428.

KRONBERG B.I., MURRAY F.H., FYFE W.S., WINDER C.G., BROWN J.R. i POWELL M. (1987): Geochemistry and petrography of the Nattagami formation lignites (northern Ontario). *Coal Science and Chemistry*, 245-263.

KUNZL V. (1932): Linear dependence of energy levels on the valency of elements. *Collect. Czech. Commun* **4**, 213-214.

KURIYAMA M. (1961): Ninhydrin-reactive substance from red algae. *Nature* **192**, 969.

LALLIER-VERGÉS E., BOUSSAFIR M., BERTRAND P. i BADAUTTRAUTH D.. (1994): Selective preservation of various organic matters as assessed by STEM studies on a cyclic productivity sedimentary series (Kimmeridge Clay Formation, U.K.). *International Meeting on Organic Geochemistry*. Stavanger, 384-388.

LALONDE R.T. (1990): Polysulfide Reactions in the Formation of Organosulfur and Other Organic Compounds in the Geosphere. *Geochemistry of sulfur in fossil fuels*. (Eds. Orr W.L. i White C.M.) 68-82. *Am. Chem. Soc.*, Washington.

LARGEAU C., DERENNE S., CASADEVALL E., BERKALOFF C., COROLLEUR M., LUGARDON B., RAYNAUD J.F. and CONNAN J. (1990): Ocurrence and origin of “ultralaminar” structures in “amorphous” kerogens of various source rocks and oil shales. *Org. Geochem.* **16**, 889-895.

LINDBERG B. (1955): Methylated taurines and choline sulfate in red algae. *Acta Chem. Scand.* **9**, 1323-1326.

LOWE L.E. i BUSTIN R.M. (1989): Forms and hydrolytic behaviour of sulphur in humic acid residue fractions of fourpeats from Fraser Lowland. *Canadian J. Soil Sci.* **69**, 287-293.

MARKUSZEWSKI (1988): Some thoughts on the difficulties in the sulfur forms in coal. *Fuel* **67**, 1091-1101.

MARTÍNEZ S. (1997): Estudi del sofre en pissares bituminoses. Escola Universitària Politècnica de Manresa, [Projecte fi de carrera].

MCMASTER W.H., KERR DEL GRANDE N., MALLETT J.H. i HUBBELL J.H. (1969): Compilation of Xray Cross sections, National Technical Information Service: Springfield.

MORRA J., FENDORF S.E. i BROWN P.D. (1997): Speciation of sulfur in humic and fulvic acids using X-ray absorption near-edge structure (XANES) spectroscopy. *Geochim. Cosmochim. Acta* **61**, 683-688.

MOSSMAN R.R., APLIN A.C., CURTIS C.D., i COLEMAN M.L. (1991): Geochemistry of inorganic and organic sulfur in organic-rich sediments from Peru margin. *Geochim. Cosmochim. Acta* **55**, 3581-3595.

NES W.R. i McKEAN M.L. (1977): Biochemistry of Steroids and Other Isopentenoids, University Park Press, Baltimore, pp.690.

NICHOLLS G.D. (1968): The geochemistry of coal-bearing strata. *Coal and coal-bearing strata*. (Eds. Murchison D.G. i Westoll R.S.) 267-307. *Oliver i Boyce*, Edinburgh i Londres.

NIP M., TEGELAAR E.W., BRINKHUIS H., DE LEEUW J.W., SCHENCK P.A. i HOLLOWAY P.J. (1986): A new non-saponifiable highly aliphatic and resistant biopolymer in plant cuticles. Evidence from pyrolysis and carbon-13 NMR analysis of present-day and fossil plants. *Org. Geochem.* 769-778.

NIP M., DE LEEUW P.A., SCHENCK W.W., MEUZELAAR H.L.C. i CRELLING J.C. (1989): A flash pyrolysis and petrographic study of cutinite from the Indiana paper coal. *Geochim. Cosmochim. Acta* **53**, 671-683.

OLIVELLA M.A. (1995): Influència del sofre en la generació d'hidrocarburs. [Projecte fi de carrera]. Escola Tècnica Superior d'Enginyers Industrials de Terrassa.

ORR W.L. i WHITE C.M. (1990): Geochemistry of Sulfur in Fossil Fuels. ACS symposium Series 429, American Chemical Society, washington dc , pp-708.

PALACIOS J. (1999): Comunicació personal.

PARRATT L.G. (1959): Electronic band structure of solids by x-ray spectroscopy. *Rev. Mod. Phys.* **31**, 616-645.

PEDERSEN T.F., SHIMMIELD G.B. i PRICE N.B. (1992). Lack of enhanced preservation of organic matter in sediments under the oxygen miniMum on the Oman margin. *Geochim. Cosmochim. Acta* **56**, 545-551.

PERRY R.H., GREEN D.W. i MALONEY J.O. (1998): Manual del Ingeniero Químico. 6th edició. McGraw-Hill. 9-4.

PÜTTMANN W. i VILLAR H. (1987): Occurrence and geochemical significance of 1,2,5,6-tetramethylnaphthalene. *Geochim. Cosmochim. Acta* **51**, 3023-3029.

QUEROL X. (1988): Distribución de material mineral y azufre en los carbones de la Formación Escucha. Relación con los factores geológicos, sedimentológicos y digenéticos. Tesis Doctoral, Universidad de Barcelona.

RENTON J. i CECIL C.B. (1979): The origin of mineral matter in coal. *Carboniferous coal guidebook*, B-37-1, 206-223. West Virginia Geological and economic survey.

RILEY J.T., RUBA G.M., LEE C.C. (1990): Direct determination of total organic sulfur in coal. *Geochemistry of sulfur in fossil fuels*. (Eds. Orr W.L. i White C.M.) 230-238. *Am. Chem. Soc.*, Washington.

RODRÍGUEZ R.A., JUL C.C. i GÓMEZ-LIMÓN D. (1997): Evolution of the organic sulfur and other components during nitric acid leaching of Mequinenza coal. *Fuel* **76**, 1445-1450.

SEITZ A.P., LEADBETTER E.R. i GODCHAUX W. III (1993): Utilization of sulfonates as sole sulfur source by soil bacteria including *Comamonas acidovorans*. *Arch. Microbiol.* **159**, 440-444.

SHIBUYA I., YAGI T. i BENSON A.A. (1963): Sulfonic acid in algae. *Microalgae and Photosynthetic Bacteria*, 627-636.

SINNINGHE DAMSTÉ J.S., RIJPSTRA W.I.C., DE LEEUW J.W. i SCHENCK P.A. (1988): Origin of organic sulphur compounds and sulphur-containing high-molecular-weight substances in sediments and crude oils. *Org. Geochem.* **13**, 593-606.

SINNINGHE DAMSTÉ J.S. (1989a): Organic Sulphur in macromolecular sedimentary organic matter.I. Structure and origin of sulphur-containing moieties in kerogen, asphaltenes and coal as revealed by flash pyrolysis. *Geochim. Cosmochim. Acta* **53**, 873-889.

SINNINGHE DAMSTÉ J.S., EGLINTON T.I., RIJPSTRA W.I.C. i de LEEUW (1989b): Characterization of Organically Bound Sulfur in High-Molecular-Weight, Sedimentary Organic Matter Using Flash Pyrolysis and Raney Ni Desulfurization. (Eds. Orr W.L. i White C.M.) 486-528. *Geochemistry of Sulfur in Fossil Fuels*. Am. Chem. Soc., Washington.

SINNINGHE DAMSTÉ J.S., DE LAS HERAS F.X.C. i DE LEEUW J.W. (1992): Molecular Analysis of Sulfur-Rich Brown Coals by Flash Pyrolysis Gas Chromatography Mass Spectrometry. The Type III-S kerogen. *J. Chromatogr.* **607**, 361-376.

SINNINGHE DAMSTÉ J.S., DE LAS HERAS F.X.C., VAN BERGEN P.F. i DE LEEUW J.W. (1993): Characterization of Tertiary Catalan lacustrine oil shales: Discovery of extremely organic sulphur-rich type I Kerogens. *Geochim. Cosmochim. Acta* **57**, 389-415.

SOLLI H. i LEPLAT P. (1986): Pyrolysis-gas chromatography of asphaltenes and kerogens from source rocks and coals- A comparative structural study. *Org. Geochem.* **10**, 313-329.

SPEARS D.A. (1986): Mineral matter in coals, with special reference to the Pennine Coalfields. *Coal and coal-bearing strata: recent advances*. (Eds. Whateley M.K.G. i Spears D.A.) 172-185. *The geological Society*, London.

SPEARS D.A i SEZGIN, H.I. (1985): Mineralogy and geochemistry of the *G. Subcrenatum* Marine Band and associated coal-bearing sediments, Langsett, South Yorkshire. *Journal of Sedimentary Petrology*, **55**, 570-578.

SPEARS D.A. (1995): Minerals in coals from Yorkshire-Nottinghamshire coalfields: Identification and quantification. *Coal Science*. (Eds. Pajares J.A. i Tascón J.M.D.) 123-126. *Elsevier Science*, Oviedo.

SPIRO C.E., WONG J., LYTLE F., GREEGOR R.B., MAYLOTTE D. i LAMPSON S. (1984): XRay absorption spectroscopyc investigation of sulfur sites in coal: Organic sulfur identification. *Elsevier Science* **226**, 48-50.

STERN E.A. i HEALD S.M. (1979): X-ray filter assembly for fluorescence measurements of x-ray absorption fine structure. *Rev. Sci. Instrum.* **50**, 1579-1582.

- STAUDT W.J. i SCHOONEN M.A.A. (1994): Sulfate incorporation into sedimentary carbonates. *Geochemical Transformations of Sedimentary Sulfur*, 333-334.
- STOCK L.M., WOLNY R. i BAL B. (1989): Sulfur distribution in American bituminous coals. *American Chemical Society*, **3**, 651-661.
- STOCK M.L. i WOLNY R. (1990): Elemental sulfur in bituminous coals. *Geochemistry of Sulfur in Fossil Fuels*. (Eds. Orr W.L. i White C.M.) 241-248. Am. Chem. Soc., Washington
- STRACHAN M.G., ALEXANDER R. i KAGI R.I. (1988): Trimethylnaphthalenes in crude oils and sediments: Effects of source and maturity. *Geochim. Cosmochim. Acta* **52**, 1255-1264.
- TEGELAAR E.W., DE LEEUW J.W., LARGEAU C., DERENNE S., SCHULTEN H.R., MÜLLER R., BOON J.J., NIP M., SPRNKELS J.C.M. (1989a): Scope and limitations of several pyrolysis methods in the structural elucidation of a macromolecular plant constituent in the leaf cuticle of *Agave americana L.* *J. Anal. Appl. Pyrol.* **15**, 29-54.
- TEGELAAR E.W., DE LEEUW J.W., SINNINGHE DAMSTÉ J.S., DERENNE S. i LARGEAU C. (1989b): *Geochim. Cosmochim. Acta* **53**, 3103-3106.
- TEGELAAR E.W., HOLLMAN P., VAN DER VEGT, DE LEEUW i HOLLOWAY P.J. (1990): Resistant Biomacromolecules in Morphologically Characterized Constituents of Kerogen: A key to the Relationship between Biomass and Fossil Fuels. Tesi doctoral. Universitat Tecnològica de Delft, 115-134.
- URIA-NICKELSON M.R., LEADBETTER E.R. i GODCHAUX W. III (1993): Sulphonate utilization by enteric bacteria. *J. Gen. Microbiol.* **139**, 203-208.
- VAIRAVAMURTHY A. (1998): Using X-ray absorption to probe sulfur oxidation states in complex molecules. *Spectrochim. Acta A* **54**, 2009-2017.
- VAIRAVAMURTHY A., MOPPER K. i TAYLOR B.F. (1992): Occurrence of particle-bound polysulfides and significance of their reaction with organic matters in marine sediments. *Geophys. Res. Lett.* **19**, 2043-2046.
- VAIRAVAMURTHY A., MANOWITZ B., LUTHER III G.W. i JEON Y.J. (1993): Oxidation state of sulfur in thiosulfate and implications for anaerobic energy metabolism. *Geochim. Cosmochim. Acta* **57**, 1619-1623.

VAIRAVAMURTHY A., MANOWITZ B., ZHOU W. i JEON Y. (1994a): Determination of Hydrogen Sulfide Oxidation Products by sulfur K-edge X-ray absorption near-edge structure spectroscopy. (Eds. Alpers C.N. i Blowes D.W.) 412-430. *Environmental Geochemistry of Sulfide Oxidation*. ACS Symposium Series 500. Am. Chem. Soc., Washington DC.

VAIRAVAMURTHY A., ZHOU E., EGLINTON T. i MANOWITZ B. (1994b): Sulfonates: A novel class of organic sulfur compounds in marine sediments. *Geochim. Cosmochim. Acta* **58**, 4681-4687.

VAIRAVAMURTHY A. i SCHOONEN M.A.A. (1995): Geochemical Transformations of Sedimentary sulfur: An introduction. *Geochemical Transformations of Sedimentary Sulfur*. (Eds. Vairavamurthy A.M. i Schoonen A.A.) 1-14. Am. Chem. Soc., Washington

VAIRAVAMURTHY A., SHENGKE W., KHANDELWAL B., MANOWITZ B., FERDELMAN T. i FOSSING H (1995): Sulfur Transformations in Early Diagenetic Sediments from the Bay of Conception, off Chile. *Geochemical Transformations of Sedimentary Sulfur*. (Eds. Vairavamurthy A.M. i Schoonen A.A.) 38-58. Am. Chem. Soc., Washington.

VAN BERGEN P.F., COLLINSON M.E., SINNINGHE DAMSTÉ J.S. i DE LEEUW J.W. (1991): A novel polyphenol biopolymer isolated from fossil seeds: an alternative source for (alkyl)phenol moieties in coals. *Am. Chem. Soc. Div. Fuel Chem. Repr.* **36**, 698-701.

VAN KREVELEN D.W. (1993): Analytical Pyrolysis Mass Spectrometry. *Coal: Typology-Physics-Chemistry-Constitution*. (Eds. Van Krevelen D.W.) 314-315. Elsevier, London.

WALDO G.S., CARLSON R.M.K., MOLDOWAN J.M., PETERS K.E. i PENNER-HAHN J.E. (1991): Sulfur speciation in heavy petroleums. Information from X-ray absorption near-edge structure. *Geochim. Cosmochim. Acta* **55**, 801-814.

WICKBERG B. (1957): Isolation of 2-L-amino-3-hydroxy-1-propane sulfonic acid from *Polysiphonia fastigiata*. *Acta Chem. Scand.* **11**, 500-511.

WILDING L.P., SMEEK N.E. i DREES L.R. (1977): Silica in soils: quartz, cristobalite, trydmite and opal. *Minerals in Soil Environments*, 471-552.

WONG J., LYTLE F.W., MESSMER R.O. i MAYLOTTE D.H. (1984): K-edge absorption spectra of selected vanadium compounds. *Phys. Rev.*, B30, 5596-5607.

YUROVSKII A.Z. (1960): Sulfur in coals. Primera publicació en USSR.

ZABACK D.A. i PRATT L.M. (1992): Isotopic composition and speciation of sulfur in the Miocene Monterey Formation: reevaluation of sulfur reactions during early diagenesis in marine environments. *Geochim. Cosmochim. Acta* **56**, 763-774.