

Aas, G. y Riedmiller, A. (1991). Gran guía de la Naturaleza; Arboles. Ed. Everest. León, 255pp.

Aragón, P., Atienza, J. and Climent, M.D. (2000). Analysis of Organic Compounds in Air: A Review. *Critical Reviews in Analytical Chemistry* 30 (2 & 3), 121-151.

Aránzazu Prada, M., Gordo, J., De Miguel, J., Mutke, S., Catalán-Bachiller, G., Iglesias, S., Gil, L. (1997). Las regiones de procedencia de *Pinus pinea* L. en España. Ed. Organismo Autónomo Parques Nacionales. 109 pp.

Arey, J., Winner, A.M., Atkinson R., Aschmann S., Long, W.D., y Morrison, C.L. (1991). The emission of (Z)-3-hexen-1-ole, (Z)-3-hexenyl Acetate and other oxygenated hydrocarbons from agricultural plant species. *Atmospheric Environment* 25A, 1063-1075.

Arey, J., Atkinson R. and Aschmann S. (1990). Product Study of the Gas-Phase Reactions of Monoterpenes with the OH Radical in the Presence of NO_x. *Journal of Geophysical Research* 95 (D11), 18,539-18,546.

Arnts, R., Petersen W., Seila R. and Gay B.W. (1982). Estimates of alpha-pinene emissions from a loblolly pine forest using an atmospheric diffusion model. *Atmospheric Environment* 16, 2127-2137.

Barceló, J., Rodrigo, N., García, B., Tamé, R. (1987). Fisiología vegetal. 4ta Edición. Ediciones Pirámide, S.A., Madrid. 106-112.

BEMA (1994). Biogenic Emissions in the Mediterranean Area. BEMA-Project. Report on the preliminary BEMA measuring campaign at Castelporziano, Rome (Italy), June 1993. EUR 15955 EN.

BEMA (1995). Biogenic Emissions in the Mediterranean Area. BEMA-Project. Report on the 1st BEMA measuring campaign at Castelporziano, Rome (Italy), May 1994. EUR 16293 EN.

Benjamin, M. T. and Winner A. M. (1998). Estimating the Ozone-Forming Potential of urban trees and shrubs. *Atmospheric Environment* 32 (1), 53-68.

Benoit, R. (1977). On the integral of the surface layer profile-gradient functions. *Journal of Applied Meteorology* 16, 859.

Bernard-Dagan, C. (1988). Seasonal variations in energy sources and biosynthesis of terpenes in maritime pine. In *Mechanisms of Woody Plant Defenses Against Insects*, eds. W.J. Mattson, J. Levieux, y C. Bernard-Dagan, pp.93-116. Springer, New York.

Bernard-Dagan, C., Cardes, J. P. and Gleizes, M. (1979). Etude des composés terpéniques au cours de la croissance des aiguilles du Pin maritime: Comparaison don données biochimiques et ultrastructurales. *Can. J. Bot.* 57, 255-263.

- Bertin, N., Staudt, M., Hansen, U., Seufert, G., Ciccioli, P., Foster, P., Fugit, J-L. and Torres, L. (1997). The BEMA-Project: Diurnal and seasonal course of monoterpene emissions by *Quercus ilex* L. under natural conditions-Application of light and temperature algorithms. *Atmospheric Environment* 31 (SI), 135-144.
- Bertoni, G. and Tappa, R. (1997). Improvement in breakthrough volume evaluation methods for light adsorbent traps employed for volatile organic compounds determination at atmospheric concentrations levels. *Journal of Chromatography A* 767, 153-161.
- Blanco, E. y Ciaran, A. (1994). Identificación y clasificación de los árboles del género Quercus. Revista Quercus, Tomo 1. Madrid, pp. 305-310.
- Bucher, J. B. (1981). SO₂-induced ethylene evolution of forest tree foliage and its potential use as stress-indicator. *European Journal for Pathology* 11, 369-373.
- Bufler, U. and Wegmann, K. (1991). Diurnal variation of monoterpene concentrations in open-top chambers and in the Weltzheim forest air, F.R.G. *Atmospheric environment* 25, 251-256.
- Calogirou, A., Larsen, B.R., Brussol, C., Duane, M. and Kotzias, D. (1996). Decomposition of Terpenes by Ozone during sampling on Tenax. *Analytical Chemistry* 68, 1499-1506.
- Cao, X-L. and Hewitt, C.N. (1994a). Build-up of artifacts on adsorbents during storage and its effect on passive sampling and gas chromatography-flame ionization detection of low concentrations of volatile organic compounds in air. *Journal of Chromatography A* 688, 368-374.
- Chameides, W.L., Lindsay, R.W., Richardson, J., Kiang, C.S (1988). The Role of Biogenic Hydrocarbons in Urban Photochemical Smog: Atlanta as a Case Study. *Science* 241, 1473-1475.
- Ciccioli, P., Fabozzi, C., Brancaleoni, E., Cecinato, A., Frattoni, M., Loreto, F., Kesselmeier, J., Schäfer, L., Bode, K., Torres, L. and Fugit, J.L. (1997). Use of the isoprene algorithm for predicting the monoterpene emission from the Mediterranean holm oak *Quercus ilex* L.: Performance and limits of this approach. *Journal of Geophysical Research* 102 (19), 23,319-23,328.
- Cochronoy, S.B., Arey J. and Atkinson, R. (1992). Hydrocarbon emissions from twelve urban shade trees of the Los Angeles, California, Air Basin. *Atmospheric Environment* 26B (3), 339-348.
- Costa, M. (1995). Desenvolupament d'un model d'emissions atmosfèriques. Aplicació a l'àrea geogràfica de Barcelona. Tesis Doctoral, Instituto de Tecnología y Modelización Ambiental, (UPC).

Centre de Recerca Ecològic i Forestal de Catalunya (CREAF) (2000). Inventari Ecològic y Forestal de Catalunya. Regió Forestal V. Generalitat de Catalunya. ISBN 84-931323-1-4.

Cremades, L.V., Sabillón, D. and Cid, J.F. (1999). Monoterpene emission factors for two typical Mediterranean species: *Pinus pinea* and *Quercus ilex*. XXIV General Assembly of the European Geophysical Society. Session OA 23 On "Biogenic emission and their Role in Atmospheric Chemistry". The Hague, The Nederlands, 19-23 abril 1999. In *Geophysical Research Abstracts*, 1 (2).pp 496.

Cremades, L.V. y Ribes, S. (1997). Emisiones biogénicas procedentes de la vegetación terrestre en las áreas mediterráneas. En II jornadas sobre VOC's. Emisión, Muestreo, Análisis y Tratamiento. Fórum Ambiental ECOMED POLLUTEC. Barcelona, 26 febrero 1997.

Croteau, R. (1977). Effect of irrigation method on essential oil yield and rate of oil evaporation in mint grown under controlled conditions. *Hortscience* 12, 563-565.

Dement W.A., Tyson, B.J. and Mooney H.A. (1975) Mechanism of monoterpene volatilization in *Salvia mellifera*. *Phytochemistry* 14, 2555-2557.

Drewitt, G.B, Curren, K., Steyn, D.G:, Gillespie, T.J. and Niki, H. (1998). Measurements of Biogenic Hydrocarbon Emissions from Vegetation in The Lower Fraser Valley, British Columbia. *Atmospheric Environment* 32 (20), 3547-3466.

Dyer, A.J. (1974) The effect of volcanic eruptions on global turbidity, and an attempt to detect long-term trends due to man. *Q.J.R. Meteorology Society* 100, 563-571.

Enders, G., Dlugi, R. Steinbrecher, R., Clement, B., Daiber, R., Eijk, J.V., Gäb, S., Haziza, M., Helas, G., Herrmann, U., Kessel, M., Kesselmeier, J., Kotzias, D., Kourtidis, K., Kurth, H-H., Mcmillen, R.T., Roider, G., Schürmann, W., Teichmann, U. and Torres, L. (1992). Biosphere/atmosphere interactions: integrated research in a European coniferous forest ecosystem. *Atmospheric Environment* 26 (A), 1, 171-189.

Enders, G., Kotzias, D. and Seufert, G. (1997). The BEMA-Project: general methods used during the Castelporziano campaigns. *Atmospheric Environment* 31 (SI), 101-117.

Ennis, C.A, Lazarus, A.L, Kok, G.L, Zimmerman, P.R. (1990). A branch chamber system and techniques for simultaneous pollutant exposure experiments and gaseous flux determinations. *Tellus* 42B, 170-182.

Evans, R.C., Tingey, D.T., Gumpertz, M.L. and Burns, W.F. (1982). Estimates of Isoprene and Monoterpene Emission Rates in Plants. *Botanical Gazette* 143 (3), 304-310.

Fall, R. and Monson, R.K. (1992). Isoprene emission rate in relation to stomatal distribution and stomatal conductance. *Plant physiology* 100, 987-992.

- Falusi, M., Calamasi, R., y Tocci, A. (1984). Resistenza al fredo in *Pinus halepensis* Mill., *Pinus brutia* Ten. e *Pinus eldarica* Medw. *Atti Soc. Tosc. Sci. Nat. Mem.* Serie B 91, 111-133.
- Fehsenfeld, F., Calvert, J., Fall, R., Goldan, P., Guenther, A.B., Hewitt, C.N., Lamb, B., Liu, S., Trainer, M., Westberg, H., Zimmerman, P.R. (1992). Emission of volatile organic compounds from vegetation and the implications for atmospheric chemistry. *Global Biogeochemical Cycles* 6, 389-430.
- Geron, C.D., Nie, D., Arnst, R.A., Sharkey, T.D., Singsaas, E.L., Vanderveer, P.J., Guenther, A., Sickles, J.E., and Kleindienst, T.E. (1997). Biogenic isoprene emission: Model evaluation in a southeastern United States bottomland deciduous forest. *Journal of Geophysical Research* 102, 18889-18901.
- Geron, C., Guenther, A. y Pierce, T. (1994). An improved model for estimating emissions of volatile organic compounds from forest in the eastern United States. *Journal of Geophysical Research* 99, 12773-12792.
- Gil, L., Díaz-Fernández, P.M., Jiménez, M.P., Roldán, M., Alía, R., Agúndez, D., De Miguel, J., Martín, S., De Tuero, M. (1996). Las Regiones de Procedencia de *Pinus halepensis* Mill. en España. Ed. Organismo Autónomo Parques Nacionales, 113 pp.
- Graedel, T.E. (1979). Terpenoids in the atmosphere. *Reviews of Geophysical Research* 17, 993-947.
- Gómez, O. (1998). Estimación de las Emisiones de Compuestos Orgánicos Volátiles Biogénicos de Origen Terrestre para Catalunya. Tesis Doctoral, Instituto de Tecnología y Modelización Ambiental, (UPC).
- Guenther, A.B. (1997) Seasonal and Spatial Variations in Natural Volatile organic Compound Emissions. *Ecological Applications* 7(1), 34-45.
- Guenther, A.B., Hewitt, C.N., Erickson, D., Fall, R., Geron, C., Graedel, T., Harley, P., Klinger, L., Lerdau, M., McKay, W.A., Pierce, T., Scholes, B., Steinbrecher, R., Tallamraju, R., Taylor, J. and Zimmerman, P. (1995). A global model of natural volatile organic compound emissions. *Journal of Geophysical Research* 100, 8873-8892.
- Guenther, A.B., Zimmerman, P.R. y Harley, P.C (1993). Isoprene and monoterpane variability: Model evaluations and sensitivity analysis. *Journal of Geophysical Research*, 98, 609-617.
- Guenther, A.B., Monson, R. y Fall, R. (1991). Isoprene and monoterpane emission rate variability: observations and emission rate algorithm development. *Journal of Geophysical Research* 96, 10799-10808.

- Hakola, H., Rinne, J. y Laurila T. (1998). The hydrocarbon emission rates of Tea-Leafed Willow (*Salix phylicifolia*), Silver Birch (*Betula pendula*) and European Aspen (*Populus tremula*). *Atmospheric Environment* 32 (10), 1825-1833.
- Hanover, J. W. (1972). Factors affecting the release of volatile chemicals by forest trees. *Mitt. Forstl. Bundesversuchsanst. Wein.*, 97.
- Hansen, U., Van Eijk, J., Bertin, N., Staudt, M., Kotzias, D., Seufert, G., Fugit, J.-L., Torres, L., Cecinato, A., Brancaleoni, E., Ciccioli, P., and Bomboi, T. (1997). Biogenic Emissions and CO₂ Gas Exchange Investigated on Four Mediterranean shrubs. *Atmospheric Environment* 31 (SI), 157-166.
- Harley, P.C., Guenther, A y Zimmerman, P. (1996). Effects of light, temperature and canopy position on net photosynthesis and isoprene emissions from sweetgum (*Liquidambar styraciflua*) leaves. *Tree Physiology* 16, 25-32.
- Harley, P.C., Litvak, M.E., Sharkey, T.D., and Monson, R.K. (1994). Isoprene emissions from velvet bean leaves. Interactions among nitrogen availability, growth photon flux density, and leaf development. *Plant Physiology* 105, 279-285.
- Heiden, A.C., Kobel, K., Komenda, M., Koppmann, R., Shao, M. and Wildt, J. (1999). Toluene Emissions from Plants. *Geophysical Research Letters* 26 (9), 1283-1286.
- Hewitt, C.N. and Street, R.A., (1992). A qualitative assessment of the emission of Non-methane hydrocarbon compounds from the biosphere to the atmosphere in the U.K.: Present knowledge and Uncertainties. *Atmospheric Environment* 26 (17), 3069-3077.
- Huber, L. (1998). Validation of analytical methods: review and strategy. *LC-GC International*. 96-105.
- Isidorov, V.A., Zenkevich, I.G., Ioffe, B. V., (1985). Volatile organic compounds in the atmosphere of forest. *Atmospheric Environment* 19, 1-8.
- Isebrands, J.G., Guenther, A.B., Harley, P., Helming, D., Klinger, L., Vierling, L., Zimmerman, P. y Geron, C. (1999). Volatile organic compound emission rates from mixed deciduous and coniferous forests in Northern Wisconsin, USA. *Atmospheric environment* 33, 2527-2536.
- Janson, R.W. (1992). Monoterpenes from the Boreal Coniferous Forest. Their Role in Atmospheric Chemistry. Doctoral Dissertation: Department of Meteorology, Stockholm University.
- Janson, R.W. (1993). Monoterpene emissions from Scots pine and Norwegian spruce. *Journal of Geophysical Research* 98, 2839-2850.
- Jiménez , M.P., Diaz-Fernández, P.M., Iglesias, S., De Tuero, M., Gil, L. (1996). Las regiones de procedencia de *Quercus ilex* L. en España. Ed. ICONA 93 pp.

- Johansson, C. y Janson, R.W. (1993). Diurnal Cycle of O₃ and Monoterpenes in a Coniferous Forest: Importance of Atmospheric Stability, Surface Exchange, and Chemistry. *Journal of Geophysical Research* 98 (D3), 5121-5133.
- Jütner, F. and Bufler, U. (1988). Physiologische und biochemische Prozesse der Terpen-Emission in *Picea abies*, in PEF (ed.), *Projekt Europäisches Forschungszentrum für mabnahmen zur Luftreinhaltung*, KFK-PEF 35 Karlsruhe, pp. 197-207.
- Juuti, S., Arey, J. y Atkinson R. (1990). Monoterpene emissions rate measurements from a monterey pine. *Journal of Geophysical Research* 95, 7515-7519.
- Kesselmeier, J. y Staudt, M. (1999). Biogenic Volatile Organic Compounds (VOC): An Overview on Emission, Physiology and Ecology. *Journal of Atmospheric Chemistry* 33, 23-28.
- Kesselmeier, J., Bode, K., Schäfer, L., Schebeske, G. Wolf, A., Brancaleoni, E., Cecinato, A., Ciccioli, P., Frattoni, M., Dutaur, L., Fugit, J.L., Simons V. y Torres, L. (1998). Simultaneous Field Measurements of Terpene and Isoprene Emissions from Two Dominant Mediterranean Oak Species in Relation to a North American Species. *Atmospheric Environment* 32 (11), 1947-1953.
- Kesselmeier, J., Schäfer, L., Ciccioli, P., Brancaleoni, E., Cecinato, A., Frattoni, M., Foster, P., Jacob, V., Denis, J., Fugit, J.L., Dutaur, L. y Torres, L. (1996). Emission of monoterpenes and isoprene from a Mediterranean oak species *Quercus ilex* L. measured within the BEMA (Biogenic Emissions in the Mediterranean Area) project. *Atmospheric Environment*, 30, 1841-1850.
- Khalil, M. A. y Rasmussen, R. A. (1992). Forest hydrocarbon emission: Relationships between fluxes and ambient concentrations. *Journal of Air and Waste Management Association* 42, 810-813.
- Kilic, N. and Ballantine, J.A (1998). Comparison of various adsorbents for long-term diffusive sampling of volatile organic compounds. *Analyst* 123, 1795-1797.
- Kimmerer, T.W. and Kozlowski, T.T. (1982). Ethylene, ethane, acetaldehyde, and ethanol production by plants under stress. *Plant Physiology* 69, 840-847.
- Köning, G., Brunda, M., Puxbaum, H., y Rudolph, J. (1995). Relative contributions of oxygenated hydrocarbon to the total biogenic VOC emission of selected mid-European agricultural and natural plant species. *Atmospheric Environment* 29, 861-874.
- Kuzma, J y Fall, R. (1993) Leaf isoprene emission rate is dependent on leaf development and the level of isoprene synthase. *Plant Physiology* 101, 435-440.
- Lamb, B., Guenther, A., Gay, D., Westberg, H. and Pierce, T. (1993). A biogenic hydrocarbon emissions inventory for the USA using a simple forest canopy model. *Atmospheric Environment* 27 A, 1673-1690.

- Lamb, B., Guenther, A., Gay, D. y Westberg, H. (1987). A national inventory of biogenic hydrocarbon emissions. *Atmospheric Environment* 21, 1695-1705.
- Lamb, B., Westberg, H. y Allwine , G. (1986). Isoprene emission fluxes determined by an atmospheric tracer technique. *Atmospheric Environment* 20, 1-8.
- Lamb, B., Westberg, H., Allwine, G. y Quarles, T (1985). Biogenic hydrocarbon emissions from deciduous rate and coniferous trees in the United States. *Journal of Geophysical Research* 90, 2380-2390.
- Larsen, B., Bomboi-Mingarro, T., Brancaleoni, E., Calogirou, A., Cecinato, A., Coeur, C., Chatzianestis, I., Duane, M., Frattoni, M., Fugit, J-L., Hansen, U., Jacob, V., Mimikos, N., Hoffman, T., Owen, S., Perez-Pastor, R., Reichmann, A., Seufert, G., Staudt, M. and Tranos, S. (1997). The BEMA-Project: Sampling and analysis of terpenes in air: an interlaboratory comparison. *Atmospheric Environment* 31 (SI), 35-49.
- Lerdau, M., Dilts, S.B., Wetsberg, H., Lamb, B.A., Allwine, E.J. (1994). Monoterpene emission from Ponderosa Pine. *Journal of Geophysical Research* 99 (D8), 16609-16615.
- Levine, J.S, Cofer III, W.R., Cahoon, D.R. y Winstead, E.L. (1995). Biomass Burning: A Driver for Global Exchange. *Environmental Science & Technology* 29 (3), 120-125.
- Lindskog, A. and Potter, A. (1995). Terpene emissions and ozone stress. *Chemosphere* 30, 1171-1181.
- Litvak, M.E., Loreto, F., Harley, P.C., Sharkey T.D. Y Monson R.K. (1996).The response of isoprene emission rate and photosynthetic rate to photon flux and nitrogen supply in aspen and white oak trees. *Plant, Cell Environment* 19, 549-559.
- Llusia, J. and Peñuelas, J. (2000). Seasonal patterns of terpene content and emission from seven Mediterranean woody species in filed conditions. *American Journal of Botany* 87(1), 133-140.
- Logan, J. (1985). Tropospheric ozone: seasonal behavior, trends, and anthropogenic influence. *Journal of Geophysical Research* 90, 10463-10482.
- Logan, J. A., Prather, M.J., Wofsy, S.C. y McElroy, M.B. (1981) Tropospheric chemistry. A global perspective. *Journal of Geophysical Research* 86, 7210-7254.
- Loreto, F., Nascenti, P., Graverini, A. y Mannozzi, M. (2000). Emission and content of monoterpenes in intact and wounded needles of the Mediterranean Pine, *Pinus pinea*. *Functional Ecology* 14, 589-595.
- Loreto, F., Ciccioli, P., Cecinato, A., Brancaleoni, E., Frattoni, M. y Tricoli, D. (1996). Influence of environmental factors and air composition on the emission of α -pinene from *Quercus ilex* leaves. *Plant Physiology* 110, 267-275.

- Loreto, F. y Sharkey, T. D. (1990). A gas exchange study of photosynthesis and isoprene emission in *Quercus rubra* L. *Planta* 182, 523-531.
- Manes, F., Grignetti, A., Tinelli, R., Lenz, R. and Ciccioli, P. (1997). General Features of the Castelporziano Test Site. *Atmospheric Environment* 31 (SI), 19-25.
- Manes, F., Seufert, G. and Vitale, M. (1997). Ecophysiological Studies of Mediterranean Plant Species at the Castelporziano Estate. *Atmospheric Environment* 31 (SI), 51-60.
- McCall, P.J., Turlings, T.C., Loughring, J., Proveaux, A.T., and Tumlimson, J.H. (1994). Herbivore induced volatile emission from cotton (*Gossypium hirsutum* L.) seedlings. *Journal of Chemistry Ecology* 20, 3039-3050.
- MacDonald, R.C., Kimmerer, T.W., Razzaghi, M. (1990). Aerobic ethanol production by leaves: Evidence for air pollution stress in trees of the Ohio river valley, U.S.A. *Environmental Pollution* 90, 337-351.
- McGarvey, D.J. and Croteau, R. (1995). Terpenoid metabolism. *The Plant Cell* 7, 1015-1026.
- McLafferty, F.W. and Turecek, F. (1993) Interpretation of Mass Spectra. 4th. ed. University Science books, Mill Valley, CA.
- Meson, M. y Montoya, J.M. (1993). Silvicultura Mediterránea. Ed. Mundi-Prensa. Madrid, 368pp.
- Midleton P. (1995) Sources of Air Pollutants. in *Composition, Chemistry, and Climate of the atmosphere*. Edited by H. B. Singh. Van Nostrand Reinhold, New York, pp 88-119.
- Millan, M., Salvador, R., Mantilla, E., Kallos G (1997). Photooxidant dynamics in the Mediterranean basin in summer: results from European research projects. *Journal of Geophysical Research* 102 (D7), 8811-8823.
- Millan, M., Salvador, R., Mantilla, E. (1996). Meteorology and photochemical air pollution in southern Europe. Experimental results from EC research projects. *Atmospheric Environment* 30 (12), 1909-1924.
- Monson R. K., Lerdau, M. T., Sharkey, T. D, Schimel, D. S. y Fall, R. (1995). Biological aspects of constructing volatile organic compound emissions inventories. *Atmospheric Environment* 29, 2989-3002.
- Monson R. K. y Fall, R. (1989). Isoprene emission from aspen leaves: Influence of environment and relation to photosynthesis and photorespiration. *Plant Physiology* 90, 267-274.
- Montoya, J.M. (1993). Encinas y encinares. Ed. Mundi-Prensa. Madrid, 131 pp.
- Moro, R., (1995). Guía de los árboles de España. Ediciones Omega. Barcelona, 407pp.

- Nieuwstadt, F. (1978). The computation of the friction velocity u^* and the temperature scale T^* from temperature and wind velocity profiles by least-squares methods. *Boundary Layer Meteorology* 14, 235-246.
- Owen, S., Boissard, C., Street, R.A., Duckham, S.C and Hewitt, C.N. (1997). The BEMA-Project: Screening of 18 Mediterranean plant species for volatile organic compound emissions. *Atmospheric Environment* 31 (SI), 101-117.
- Paoletti, E., Raddi, P. and La Scala, S. (1998). Relationships between transpiration, stomatal damage and leaf wettability in declining beech trees. *Chemosphere* 36 (4-5), 907-912.
- Parusel, E. Plass-Dülmer, Ch., Rudolph, J., König, G. Duckham, C, Hewitt, N. (1993). Test of a Dynamic Enclosure System for the study of light Hydrocarbon Emissions from Vegetation. *Air Pollution Research report 47, Joint Workshop CEC/BIATEX of EUROTAC*, Ed. Slamina, J. Angeletti and Beilke, S., 235-242.
- Peñuelas, J. and Llusià, J. (1999). Seasonal emission of monoterpenes by the Mediterranean tree *Quercus ilex* L. in field conditions: relations with photosynthetic rates, temperature and volatility. *Physiologia Plantarum* 105, 641-647.
- Peñuelas, J., Llusià, J., and Estiarte, M. (1995). Terpenoids: a plant language. *Trends in Ecology and Evolution* 10, 289.
- Pier, P.A y McDuffie, Jr. C. (1997) Seasonal Isoprene Emission Rates and Model Comparisons Using Whole-tree emissions from White Oak. *Journal of Geophysical Research* 102 (D20), 23,963-23,971.
- Pierce T., and Waldruff, P. (1991). PC-BEIS: a personal computer version of the biogenic emission inventory system. *Journal of Air and Waste Management Association* 41, 937-941.
- Rasmussen, R.A., and Went, F.W. (1965). Volatile organic material of plant origin in the atmosphere. *Proc. Natl. Acad. Sci. (USA)* 53, 215-220.
- Rasmussen, R.A. (1972). What do the hydrocarbons from trees contribute to air pollution. *Journal of Air Control Pollutants Association* 22, 537-543.
- Renwick, J.A y Potter, J. (1981). Effects of sulfur dioxide on volatile terpene emission from balsam fir. *JAPCA* 31, 65-66.
- Riba, M., Tathy, J., Tsipopoulou, N., Monsarrat, B., and Torres, L. (1987). Diurnal variation in the concentration of α -pinene and β -pinene in the Landes forest (France). *Atmospheric environment* 21, 191-193.

Ribes, S. (1996). Estimación de las emisiones de los COV procedentes de la vegetación de Catalunya. Proyecto de Máster. Instituto de Tecnología y Modelización Ambiental, (UPC).

Roberts, J.M., Feshenfeld, G.C., Albritton D.L. y Sievers R.E. (1984). In L.H. Keith (Editor) *Identification and Analysis of Organic Pollutants in Air*. Butterworth, London. Pp.371-387

Rodríguez Murillo J.C. (1994). The carbon Budget of the Spanish Forests. *Biogeochemistry* 25, 197-217.

Roselle, S.J., Pierce T. y Schere, K. (1991). The sensitivity of regional ozone modelling to biogenic hydrocarbons. *Journal of Geophysical Research* 96, 7371-7394

Rothweiler, H., Wäger, P.A., Schalatter, C. (1991). Comparison of Tenax TA and Carbotrap for Sampling and Analysis of Volatile Organic Compounds in Air. *Atmospheric Environment* 25 B(2), 231-235.

Sabillón, D. and Cremades, L.V (2001). Diurnal and seasonal variation of monoterpene emissions rates for two typical Mediterranean species (*Pinus pinea* and *Quercus ilex*) from field measurements. Relationship with temperature and PAR. *Atmospheric Environment* 35 (26), 4419-4431.

Sabillón, D. and Cremades, L.V (2000). Monoterpene emission models for two typical Mediterranean trees (*Pinus pinea* and *Quercus ilex*) from field measurements. In *Proceedings of V Congreso Internacional de Ingeniería de Proyectos*. Lleida, 4-6 octubre de 2000.

Sanadze, G.A. (1957) The nature of gaseous substances emitted by leaves of *Robina pseudoacacia*. *Soobshch. Akad. Nauk Gruz. SSR*, 19, 83-86.

Schäfer, L., Kesselmeier, J. y Helas G. (1992) Formic and acetic acid emission from conifers measured with a "cuvette" technique. In *Field Measurements and Interpretation of Species Related to Photooxidants and Acid Deposition*, CEC Air Pollution Research 39 (edited by Angeletti G., belike S y Slanina, J.), pp. 319-323. E.Guyot SA, Brussels.

Schindler, T. and Kotzias, D. (1989). Comparison of monoterpene volatilization and leaf-oil composition of conifers. *Naturwissenschaften* 76, 475-476.

Schmid, C., Steinbrecher, R., y Ziegler, H. (1992). Partition coefficients of plants cuticles for monoterpenes. *Trees* 6, 32-36.

Schnitzler, J-P. Lehning, A. and Steinbrecher, R. (1997). Seasonal Pattern of Isoprene Synthase Activity in *Quercus robur* leaves and its Significance for Modeling Isoprene Emission Rates. *Botanical Acta* 110, 240-243.

- Schuh, G., Heiden, A.C., Hoffmann, Th., Kahl, J., Rockel, P., Rudolph, J. and Wildt, J. (1997) Emissions of Volatile Organic Compounds from Sunflower and Beech: Dependence on Temperature and Light Intensity. *Journal of Atmospheric Chemistry* 27, 291-318.
- Schürmann, W., Ziegler, H., Kotzias, D., Schönwitz, R., and Steinbrecher, R. (1993) Emission of biosynthesized monoterpenes from needles of *Norway Spruce*. *Naturwissenschaften* 80, 276-278.
- Seiler, W. y Conrad, R. (1987). Contribution of tropical ecosystems to the global budget of trace gases, especially CH₄, H₂, CO and N₂O. In *The Geophysiology of Amazonia*, Dickinson, R (ed.) John Wiley & Sons, N.Y. 133-160.
- Seufert, G., Bartzis, J., Bomboi, T., Ciccioli, P. Cieslik, S. Dlugi, R., Foster, P., Hewitt, C.N., Kesselmeier, J., Kotzias, D., Lenz, R., Manes, F., Perez Pastor, R., Steinbrecher, R., Torres, L., valentini, R. and Versino, B. (1997 a). An Overview of the Castelporziano experiments. *Atmospheric Environment* 31 (SI), 5-17.
- Seufert, G., Sanz, M.J., Millán, M. (1997 b). Report on the 3rd BEMA measuring campaign at Burriana (Valencia-Spain), EUR 17305 EN.
- Seufert, G., Kotzias, D., Spartá, C. Y Versino, B. (1995). Volatile organics in Mediterranean shrubs and their potential role in a changing environment. In *Global Change and Mediterranean-Type Ecosystems*, eds. J.M. Moreno y W.C Oechel, pp.343-370. Ecological Studies 117. Springer New York.
- Sharkey, T.D., Singsaas E.L., Vanderveer, P.J. y Geron, C (1996). Field measurements of isoprene emissions from trees in response to temperature and light. *Tree Physiology* 16, 649-654.
- Sharkey, T. y Loreto, F. (1993). Water stress, temperature and light effects on the capacity for isoprene emission and photosynthesis of kudzu leaves. *Oecologia* 95, 328-333.
- Simon, V., Dutaur, L., Brouard-Darmais, S., Riba, M.L. y Torres L. (1998). Biogenic Emissions by Oak Trees Common to Mediterranean Ecosystems. *Environmental Monitoring and Assessment* 52, 131-139.
- Simon, V., Clement, B., Riba, M-L. and Torres L. (1994). The Landes-experiment: Monoterpenes emitted from the maritime pine. *Journal of Geophysical Research* 99, 16501-16510.
- Simpson, D., Winiwarter, W., Börjesson, G., Cinderby, S., Ferreiro, A., Guenther, A.B., Hewitt, C.N., Janson, R., Khalil, M.A.K., Owen, S., Pierce, T.E., Puxbaum, H., Shearer, M., Skiba, U., Steinbrecher, R., Tarrasón, L. and Öquist, M.G. (1999). Inventorying emissions from nature in Europe. *Journal of Geophysical Research*, 104 (D7), 8113-8152.

- Simpson, D. and Winiwarter, W. (1998). Emissions from natural sources. Contribution of the Nature Expert Panel to the EMEP/CORINAIR Atmospheric Emission Inventory Guidebook. Report R-147, Federal Ministry for Environment, Youth and Family, Vienna.
- Singsaas, E.L. and Sharkey, T.D. (1997). Isoprene emissions under rapidly fluctuating leaf temperatures, in *Workshop on Biogenic Hydrocarbons in the Atmospheric Boundary Layer*, 24-27 august 1997, Charlottesville Virginia, American Meteorological Society, U.S.A. pp. 12-15.
- Staudt, M., Bertin, N., Frenzel, B. and Seufert, G. (2000). Seasonal Variation and Composition of Monoterpenes Emitted by Young *Pinus pinea* Trees-Implications for Emission Modeling. *Journal of Atmospheric Chemistry* 35, 77-99.
- Staudt, M. and Bertin, N. (1998). Light and temperature dependence of the emission of cyclic and acyclic monoterpenes from holm oak (*Quercus ilex* L.) leaves. *Plant, cell and Environment*, 21, 385-395.
- Staudt, M., Bertin, N., Hansen, U., Seufert, G., Ciccioli, P., Foster, P., Frenzel, B., Fugit, J-L. y Torres, L. (1997). The BEMA-Project: Seasonal and diurnal patterns of monoterpene emissions from *Pinus pinea* (L). *Atmospheric Environment* 31 (SI), 145-156.
- Staudt, M. and Seufert, G. (1995). Light-dependent emission of monoterpenes from Holm Oak (*Quercus ilex* L.). *Naturwissenschaften* 82, 89-92.
- Staudt, M., Seufert, G., Kotzias, D., Spartá, C. and Ciccioli, P. (1993). Holm Oak (*Quercus ilex*)- a strong emitter of monoterpenes. Ed. P. Ciccioli In *Proceedings of the 1st Italian Symp. On the Strategies and Techniques for the Monitoring of the Atmosphere*, Società Chimica Italiana, Rome. pp. 579-586.
- Steinbrecher, R., Hauff, K., Rabong, R. and Steinbrecher, J. (1997). The BEMA-project: Isoprenoid emission of oak species typical for the Mediterranean area: Source strength and controlling variables. *Atmospheric Environment*, 31 (SI), 79-88.
- Steinbrecher, R., Eichstädter, G., Schürmann, W., Torres, L., Clement, B., Simon, V., Kotzias, D., Daiber, R. and Van Eijk, J. (1994). Monoterpenes in Air samples: European Intercomparison Experiments. *International Journal of Environmental. Analytical Chemistry* 54, 283-297.
- Street, R.A., Duckham, S.C., Boissard, C. and Hewitt, C.N. (1994). Biogenic terpenoid emission from vegetation in Europe- A contribution to subproject BIATEX. In P.M, Borrell *et al* (Eds.) *Proceedings of Eurotrac Symposium '94*. Academic Publishing, The Hague, The Netherlands, 480-484.
- Street, R.A., Owen, S., Duckham, S.C., Boissard, C. and Hewitt, C.N. (1997a). The BEMA-Project: Effect of habitat and age on variations in emissions from *Pinus pinea* and *Quercus ilex*. *Atmospheric Environment*, 31 (SI), 89-100.

- Street, R.A., Hewitt, C.N. and Mennicken S. (1997b). Isoprene and monoterpene emissions from a Eucalyptus plantation in Portugal. *Journal of Geophysical Research* 102 (D13), 15,875-15,887.
- Thunis, P. and Cuvelier, C. (2000). Impact of biogenic emissions on ozone formation in the Mediterranean area – a BEMA modelling study. *Atmospheric Environment* 34, 467-481.
- Tingey, D.T., Manning, M., Grothaus, L.C. and Burns, W.F. (1980). Influence of light and temperature on monoterpene emissions from slash pine. *Plant Physiology* 65, 797-801.
- Tingey, D.T., Turner, D.P and Weber, J.A. (1991). Factors Controlling the Emissions of Monoterpene and Other Volatile Organic Compounds. *Trace Gas Emissions By Plants*. Eds. T.D Sharkey, E.A Holland and H.A Mooney. Academic Press, San Diego. pp. 93-119
- Venkatachalam, K.V., Kjonaas, R. and Croteau, R. (1984). Development and essential oil content of secretory glands of sage (*Salvia officinalis*). *Plant Physiology* 76, 148-150.
- Versino, B. (1997). BEMA-Project Introduction and Objectives. *Atmospheric Environment* 31 (SI), 1-3.
- Viñas, O y Baülies, X. (1995). 1:250000 Land-Use map of Catalonia (320,000 Km²) using multi-temporal Landsat-TM data. *International Journal of Remote Sensing* 16, 129-146.
- Wang, Y., Raihala, T.S, Jackman, A.P. and St.John, R. (1996). Use of Tedlar Bags in VOC Testing and Storage: Evidence of Significant VOC Losses. *Environmental Science Technology* 30, 3115-3117.
- Went, F.W. (1960) Organic matter in the atmosphere, and its possible relation to petroleum formation. *Procc. Natl. Acad. Sci. USA.* 46, 212-221.
- Winner, A.M., Arey, J., Atkinson, R. Aschmann, S.M., Long, W.D. Morrisson, C.L., Olszyk, M. (1992). Emissions rates of organics from vegetation in California's Central Valley. *Atmospheric Environment* 26A, 2647-2659.
- Woolfenden E. (1997). Monitoring VOCs in Air Using Sorbent Tubes Followed by Thermal Desorption-Capillary GC Analysis: Summary of Data and Practical Guidelines. *Journal of the Air & Waste Management Association* 47, 20-36.
- Yani, A., Pauly, G., Faye, M., Salin, F. and Gleizes, M. (1993). The effect of a long-term water stress on the metabolism and emission of terpenes of the foliage of *Cupressus sempervirens*. *Plant Cell and Environment*, 975-981.

- Yamaura, T., Tanaka, S., and Tabata, M. (1989). Light-dependent formation of glandular trichomes and monoterpenes in thyme seedlings. *Phytochemistry* 28, 741-744.
- Yatagai, M., Ohira, M., Ohira, T. and Nagai, S. (1995). Seasonal variations of terpene emissions from trees and influence of temperature, light and contact stimulation of terpene emission. *Chemosphere* 30, 1137-1149.
- Yokouchi, Y. and Ambe, Y. (1985). Aerosols formed from the chemical reaction of monoterpenes and ozone. *Atmospheric Environment* 19, 1271-1276.
- Yokouchi, Y. and Ambe, Y. (1984). Factors affecting the emission of monoterpenes from red pine (*Pinus desinflora*) – Long-term effects of light, temperature and humidity. *Plant physiology* 75, 1009-1012.
- Yoshida, T., Higashi, F. and Ikawa, S. (1968). On the oil-containing tissue, the essential oil contents and the chemical composition of essential oil in *Perilla* species. *Proc. Crop. Sci. Soc. Japan* 37, 118-122.
- Zimmermann, P. R. (1979). Testing of hydrocarbons emissions from vegetation, leaf litter and aquatic surfaces, and development of a method for compiling biogenic emission inventories. *Rep. EPA-450/4-70-004*, U.S. Environmental Protection Agency, Research Triangle Park, N.C.

PAGINAS WEB CONSULTADAS

- Canovás Garré, P. A. (1999) La Encina y la Tierra Agrícola.
URL <<http://encina.virtualave.net/0.htm>>
- Frankis, Michael (1999). Gymnosperm Database. Universidad de Bonn URL
<<http://www.botanik.uni-bonn.de/conifers/pi/pin/pinea.htm>>
- Magdziarz, Robert. (2000). The main plant page with photos and information for each plant. Copyright © 1998-2000.
URL<<http://www.csupomona.edu/~agri/plantmat/main/>>
- National Institute of Standard and Technologies NIST (2001) Standard Reference Database Number 69. URL <<http://webbook.nist.gov/>>
- Sanna, Paolo (1999). Archivio fotografico delle Immagini di Sardegna.
URL <<http://www.fotodisardegna.it/flora/l/ogl0654.htm>>