
11.- BIBLIOGRAFIA

- Abel S & Theologis A (1996) Early genes and auxin action. *Plant Physiol.* 111: 9-17.
- Allen CA & Trewavas AJ (1994) Abscisic acid and gibberellin perception, inside or out? *Plant Physiol.* 104: 1107-1108.
- Altschul SF, Madden TL, Schaffer AA, Zhang J, Zhang Z, Miller W & Lipman DJ (1997) Gapped BLAST and PSI-BLAST: a new generation of protein database search programs. *Nucleic Acids Res.* 25: 3389-3402.
- Alvarez MA, Miranda MV, Cascone O & Giulietti AM (1995) Peroxidase production by *Armoracia lapathifolia* transformed roots. In: *Current Topics in Plant Physiology*. (DL Gustine & HE Flores, eds.). Vol. 15, pp. 305-307. American Society of Plant Physiologists Series. Phytochemicals and Health. USA.
- Amagase S (1972) Digestive enzymes in insectivorous plants III. Acid proteases in the genus *Nepenthes* and *Drosera peltata*. *J. Biochem.* 72: 73-81.
- Amagase S, Nakayama S & Tsugita A (1969) Acid protease in *Nepenthes*. II. Study on the specificity of nepenthesin, *J. Biochem.* 66: 431-439.
- Ancora G (1986) Globe Artichoke (*Cynara scolymus* L.). In: *Biotechnology in Agriculture and Forestry* Vol. 2: Crops 1 (YPS Bajaj, ed.), pp.: 471-484. Springer-Verlag. Berlin.
- Ancora G, Belli-Donini ML & Cuozzo L (1981) Globe artichoke obtained from shoot apices through rapid *in vitro* micropropagation. *Scientia Hortic.* 14: 207-213.
- Anderson JW (1968) Extraction of enzymes and subcellular organelles from plant tissues. *Phytochem.* 7: 1973-88.
- Andrews AT (1983) Proteinases in normal bovine milk and their action on caseins. *J. Dairy Res.* 50: 45-55.
- Anson I (1938) The estimation of pepsin, tripsin, papain, and cathepsin with hemoglobin. *J. Gen. Physiol.* 22: 79-89.
- AOAC (1984) *Official Methods of Analysis*. Association of Official Analytical Chemists, Inc. (S Williams, ed.). 14th edition. Arlington. Virginia. USA.
- Apte PV, Kaklij GS & Heble MR (1979) Proteolytic enzymes (bromelains) in tissue cultures of *Ananas sativus* (pineapple). *Plant Sci. Lett.* 14: 57-62.
- Areces LB, Biscoglio MJ, Parry MA, Fraile ER, Fernandez HM & Cascone O (1992) Purification and characterization of a milk clotting protease from *Mucor bacilliformis*. *Appl. Biochem. Biotechnol.* 37: 283-294.
- Arima K, Yu J & Iwasaki S (1970) Milk-clotting enzyme from *Mucor pusillus* var. Lindt. *Meth. Enzymol.* 19: 446-459.

- Arribére MC, Cortadi AA, Gattuso MA, Bettiol MP, Priolo NS & Caffini NO (1998) Comparison of *Asclepiadaceae* latex proteases and characterization of *Morrenia brachystephana* Griseb. cysteine peptidase. *Phytochem. Anal.* 9: 1-7.
- Arribére MC, Vairo Cavalli SE, Priolo NS, Caffini NO, Gattuso MA & Cortadi AA (1999) Proteolytic enzymes from the latex of *Morrenia odorata* (Hook et Arn.) Lindley (*Asclepiadaceae*). *Acta Hort.* 501: 259-268
- Asakura T, Abe K & Arai S (1995a). Evidence for the occurrence of multiple aspartic proteinases in rice seeds. *Biosci. Biotech. Biochem.* 59 (9): 1793-1794.
- Asakura T, Watanabe H, Abe K & Arai S (1995b). Rice aspartic proteinase, oryzasin, expressed during seed ripening and germination, has a gene organization distinct from those of animal and microbial aspartic proteinases. *Eur. J. Biochem.* 232: 77-83.
- Asakura T, Watanabe H, Abe K & Arai S (1997) Oryzasin as an aspartic proteinase occurring in rice seeds: purification, characterization, and application to milk clotting. *J. Agric. Food Chem.* 45: 1070-1075.
- Avila EA (1987) *El alcaucil o alcachofa. Planta hortícola y medicinal.* pp:1-28. El Ateneo. Bs.As.
- Aword OC & Muller HG (1987) Cheese-making properties of vegetable rennet from Sodom apple (*Calotropis procera*). *Food Chem.* 26: 71-79.
- Aword OC & Nakai S (1986) Extraction of milk clotting enzyme from Sodom apple (*Calotropis procera*). *J. Food Sci.* 51: 1569-1570.
- Baaziz M, Aissam F, Brakez Z, Bendiab K, El Hadrami I & Cheikh R (1994) Electrophoretic patterns of acid soluble proteins and active isoforms of peroxidase and polyphenoloxidase typifying calli and somatic embryos of two reputed date palm cultivars in Morocco. *Euphytica* 76: 159-168.
- Bajaj YPS (1988) *Biotechnology in Agriculture and Forestry.* Springer-Verlag. Berlin Heidelberg.
- Barendse GWM & Peeters TJM (1995) Multiple hormonal control in plants. *Acta Bot. Neerl.* 44: 3-17.
- Barrett AJ (1994) Classification of peptidases. *Meth. Enzymol.* 244: 1-15.
- Barrett AJ, Rawlings ND & Woessner JF (1998) *Handbook of Proteolytic Enzymes.* Academic Press, UK.
- Barros MT, Carvalho MG, Garcia FAP & Pires EMV. (1992) Stability performance of *Cynara cardunculus* L. acid protease in aqueous-organic biphasic systems. *Biotechnol. Lett.* 14: 179-184.
- Batkin S, Taussing SJ & Szekerczes J (1988a) Modulation of pulmonary metastasis (Lewis lung carcinoma) by bromelain, an extract of pineapple stem (*Ananas comosus*). *Cancer Invest.* 6: 241-242.

- Batkin S, Taussing SJ & Szekerczes J (1988b) Antimetastatic effect of bromelain with or without its proteolytic and anticoagulant activity. *J. Cancer Res. Clin. Oncol.* 114: 507-508.
- Behrend J & Mateles RI (1975) Nitrogen metabolism in plant cell suspension cultures. I. Effect of amino acids on growth. *Plant Physiol.* 56: 584-589.
- Bell AA (1981) The physiological role(s) of secondary (natural) products. In: *The Biochemistry of Plants. 7: Secondary Plant Products.* (EE Conn,ed.), pp: 1-19. Academic Press. New York. USA.
- Belozersky MA, Dunaevsky YE, Rudenskaya GN & Stepanov VM (1984) Carboxyl proteinases from buckwheat seeds. *Biochemistry (USSR)* 49: 401-407.
- Belozersky MA, Sarbakanova ST & Dunaevsky YE (1989) Aspartic proteinase from wheat seeds: isolation, properties and action on gliadin. *Planta* 177: 321-326.
- Bernholdt HF (1982) The use of enzymes en the tenderization of meat. In: *Use of Enzymes in Food Technology*, (P Dupuy, ed.), pp.: 395-398. Technique et Documentation Lavoisier. Paris.
- Bernstein NK & James MNG (1999) Nobel ways to prevent proteolysis – prophytepsin and proplasmepsin II. *Curr. Opin. Structr. Biol.* 9: 684-689.
- Bethke PC, Hillmer S & Jones RI (1996) Isolation of intact protein storage vacuoles from barley aleurone: Identification of aspartic and cysteine proteases. *Plant Physiol.* 110: 521-529.
- Biehl B, Heinrichs H, Ziegeler-Berghausen H, Srivastava S, Xiong Q, Passern D, Senyuk VI & Hammour M (1993) The proteases of ungerminated cocoa seeds and their role in the fermentation process. *Angew. Bot.* 67: 59-65.
- Bigot C & Foury C (1984) Multiplication *in vitro* d'artichaut (*Cynara scolymus* L.) á partir de semences: comparaison au champ de quelques clones á la lignée dont ils sont issus. *Agronomie* 4: 699-710.
- Blinda A, Abou-Mandour A, Azarkovich M, Brune A & Dietz K (1996) Heavy metal-induced changes in peroxidase activity inleaves, roots and cell suspension cultures of *Hordeum vulgare* L. In: *Plant Peroxidases: Biochemistry and Physiology* (C Obinger, U Burner, R Ebermann, C Penel & H Greppin, eds.), pp.: 374-379. University of Geneve, Switzerland.
- Boller T (1986) Roles of proteolytic enzymes in interactions of plants with other organisms. In: *Plant Proteolytic Enzymes.* Vol. 1 (MJ Dalling, ed.) pp: 67-96. CRC Press Inc. Boca Ratón. Florida. USA.
- Bouque V, Bourgaud F, Nguyen C & Guckert A (1998) Production of daidzein by callus cultures of *Psoralea* species and comparison with plants. *Plant Cell Tiss. Org. Cult.* 53: 35-40.
- Bourgeois J & Malek L (1991) Purification and characterization of an aspartyl proteinase from dry jack pine seeds. *Seed Sci. Res.* 1: 139-147.

- Bouza L, Jacques M, Sotta B & Miginiac E (1993) The differential effect of N⁶-benzyladenine and N⁶-(Δ^2 -isopentenyl)-adenine on *in vitro* propagation of *Paeonia suffruticosa* Andr. is correlated with different hormone contents. *Plant Cell Rep.* 12: 593-596.
- Bradford MB (1976) A rapid and sensitive method for the quantitation of micrograms quantities of protein utilizing the principle of protein-dye binding. *Anal. Biochem.* 72: 528-530.
- Brain KR (1976) Accumulation of L-DOPA in cultures from *Macuna pruriens*. *Plant Sci. Lett.* 7: 157-161.
- Bricage P (1988) The isoperoxidase pattern changes and the pigment changes of *Pedilanthus tithymaloides* L. *variegatus* calli as a result of sucrose concentration and phytohormone content of the culture medium and daily temperature differences. *Plant Sci.* 55: 169-173.
- Brito C (1986) Desarrollo de variedades de quesos elaborados con leche de cabra y mezclada con leche de vaca. In: *Manual de Elaboración de Quesos*. Equipo Regional de Fomento y Capacitación en Lechería de FAO para América Latina. Santiago. Chile.
- Brule G & Lenoir J (1990) La coagulación de la leche. En: *El Queso* (A Eck, ed.), pp.: 3-13. Ediciones Omega. Barcelona. España.
- Brutti C, Apóstolo N, Ferrarotti S, Llorente B & Krymkiewicz N (2000). Micropropagation of *Cynara scolymus* L. employing cyclodextrins to promote rhizogenesis. *Scientia Hort.* 83: 1-10.
- Caffini NO, Lopez LMI, Natalucci CL & Priolo NS (1988) Proteasas de Plantas Superiores I. Características generales, rol fisiológico y aplicaciones. *Acta Farm. Bonaerense* 7: 195-213.
- Charney J & Tomarelli RM (1947) A colorimetric method for the determination of the proteolytic activity of duodenal juice. *J. Biol. Chem.* 171: 501-505.
- Choisy C, Desmazeaud M, Gripon JC, Lamberet G, Lenoir J & Tourneur C (1990) Los fenómenos microbiológicos y enzimáticos y la bioquímica del afinado. In: *El Queso*, ed. A Eck, pp: 57-91. Ediciones Omega. Barcelona. España.
- Christianson ML & Hornbuckle JS (1999) Phenylurea cytokinins assayed for induction of shoot buds in the moss *Funaria hygrometrica*. *Amer. J. Bot.* 86: 1645-1648.
- Chrzanowska J, Kolaczowska M, Dryjanski M, Stachowiak D & Polanowski A. (1995) Aspartic proteinase from *Penicillium camemberti*: purification, properties, and substrate specificity. *Enz. Microb. Technol.* 17: 719-724.
- Cleland RE (1995) Auxin and cell elongation. In: *Plant Hormones: Physiology, Biochemistry and Molecular Biology* (PJ Davies, ed.), pp: 214-227. Kluwer Acad. Publ. The Netherlands.
- Coleman GD & Ernst SG (1991) Protein differences among *Populus deltoides* internodal stem explants determined for shoot regeneration or callus growth. *Plant Sci.* 75: 83-92.

- Conger BV (1987) *Cloning Agricultural Plants Via In Vitro Techniques*. CRC Press. Florida. USA.
- Constabel F & Tyler RT (1994) Cell culture for production of secondary metabolites. In: *Plant Cell and Tissue Culture* (IK Vasil & TA Thorpe, eds.), pp.: 271-289. Kluwer Acad. Publ. The Netherlands.
- Cordeiro MC, Jakob E, Puhan Z, Pais MS & Brodelius PE. (1992) Milk clotting and proteolytic activities of purified cynarases from *Cynara cardunculus*: a comparison to chymosin. *Milchwissenschaft* 47: 681-687.
- Cordeiro MC, Pais MS & Brodelius PE. (1994a) Tissue-specific expression of multiple forms of cyprosin (aspartic proteinase) in flowers of *Cynara cardunculus*. *Physiol. Plant.* 92: 645-653.
- Cordeiro MC, Pais MS & Brodelius PE. (1998) *Cynara cardunculus*. subsp. *flavescens* (cardo): in vitro culture, and the production of cyprosin (milk-clotting enzymes). In: *Biotechnology in Agriculture and Forestry. Vol 41 Medicinal and Aromatic Plants X* (YPS Bajaj, ed.), pp.: 132-153. Springer-Verlag. Berlin. Heidelberg. Germany.
- Cordeiro MC, Xue ZT, Pietrzak M, Pais MS & Brodelius PE. (1993) Proteases from cell suspension cultures of *Cynara cardunculus*. *Phytochemistry* 33: 1323-1326.
- Cordeiro MC, Xue ZT, Pietrzak M, Pais MS & Brodelius PE. (1994b) Isolation and characterization of a cDNA from flowers of *Cynara cardunculus* encoding cyprosin (an aspartic proteinase) and its use to study the organ-specific expression of cyprosin. *Plant Mol. Biol.* 24: 733-741.
- Cormier F, Charest C & Dufresne C (1989) Partial purification and properties of proteases from fig (*Ficus carica*) callus cultures. *Biotechnol. Lett.* 11: 797-802.
- Costa J, Ashford DA, Nimitz M, Bento I, Frazao C, Esteves CL, Faro CJ, Kervinen J, Pires E Verissimo P, Wlodawer A & Carondo MA (1997) The glycosylation of the aspartic proteinases from barley (*Hordeum L.*) and cardoon (*Cynara cardunculus L.*) *Eur. J. Biochem.* 243: 695-700
- Cramer C, Boothe J & Oishi K (1999) Transgenic plants for therapeutic proteins. Linking upstream and downstream strategies. In: *Plant Biotechnology. New Products and Applications* (J Hammond, P McGarvey & V Yusibov, eds.), pp.: 95-118. Springer-Verlag Berlin Heidelberg. Germany.
- Creche J, Guiller J, Andreu F, Grass M, Chenieux JC & Rideau M (1987) Variability in tissue cultures of *Choisya ternata* originating from a single tree. *Phytochemistry* 26: 1947-1953.
- Cuenca J, García-Florenciano E, Ros Barceló A & Muñoz R (1989) Sequential release of both basic and acidic isoperoxidases to the media of suspension cultured *Capsicum annum*. *Plant Cell Rep.* 8: 471-474.
- Dalgleish DG (1992) The enzymatic coagulation of milk. In: *Advanced Dairy Chemistry I: Proteins* (PF Fox, ed.), pp.: 579-619. Elsevier Applied Science. Elsevier Science Publishers Ltd. England.

- Davies BJ (1964) Disc electrophoresis. 2. Method and application to human serum proteins. *Ann. N.Y. Acad. Sci.* 121: 404-427.
- Davies DR (1990) The structure and function of the aspartic proteinases. *Annu. Rev. Biophys. Chem.* 19: 189-215.
- Davies PJ (1995) The plant hormones: their nature, occurrence and functions. In: *Plant Hormones: Physiology, Biochemistry and Molecular Biology* (PJ Davies, ed.), pp.: 1-12. Kluwer Acad. Publ. The Netherlands.
- De Fossard RA (1976) *Tissue Culture for Plant Propagators*. University of New England. Dept. of Botany. Armidale. Australia.
- Debergh P, Harbouy Y, Lemeur R (1981) Mass propagation of Globe artichoke (*Cynara scolymus*). Evaluation of different hypothesis to overcome vitrification with special reference to water potential. *Physiol. Plant.* 53: 181-187.
- Del Grosso E, Grazia S & Maraldi AC (1987) Peroxidase activity in *Phaseolus vulgaris* seedling tissues and callus cultures: a comparison of fenotypes and development stages. *Environ. Exp. Bot.* 27: 387-394.
- Devos P, De Bruijne E, De Langhe E (1975) Influence of 2,4-D on the propagation of *Cynara scolymus* L. *in vitro*. *Meded. Fac. Landb. Rijksuniv. Gent.* 40: 829-836.
- D'Hondt K, Bosch D, Van Damme J, Goethals M, Vanderckhove J & Krebbers E (1993) An aspartic proteinase present in seeds cleaves *Arabidopsis* 2S albumin precursors *in vitro*. *J. Biol. Chem.* 268: 20884-20891.
- D'Hondt K, Stack S, Gutteridge S, Vandekerckhove J, Krebbers E, Gal S (1997) Aspartic proteinase genes in the Brassicaceae *Arabidopsis thaliana* and *Brassica napus*. *Plant Mol. Biol.* 33: 187-192.
- Di Cosmo F & Misawa M (1995) Plant cell and tissue culture: alternatives for metabolite production. *Biotechnol. Adv.* 13: 425-453.
- Di Cosmo F & Towers GHN (1984) Stress and secondary metabolism in cultured plant cells. In: *Phytochemical Adaptations to Stress* (BN Timmermann, C Steelink & FA Loewus, eds.) pp.: 97-175. Plenum Press. New York. USA.
- Dimitri, MJ (1979) *Enciclopedia Argentina de Agricultura y Jardinería*. Tomo I, Vol. II, pp.: 1064-1065. Editorial Acme. Buenos Aires. Argentina.
- Dix PJ, Butler Y, Dix Y & Parkinson M (1993) Influence of calcium ions and stress on peroxidase secretion by horseradish cell suspension cultures. In: *Plant Peroxidases: Biochemistry and Physiology* (KG Welinder, SK Rasmussen, C Penel & H Greppin, eds.), pp.: 457-460. University of Copenhagen and University of Geneva.
- Dixon RA (1985) *Plant Cell Culture: A Practical Approach*. IRL Press Ltd. Oxford. UK.
- Doi E, Shibata D, Matoba T & Yonezawa D (1980) Characterization of pepstatin-sensitive acid protease in resting rice seeds. *Agric. Biol. Chem.* 44: 741-747.
- Domingos A, Xue Z, Guruprasad K, Clemente a, Blundell T, Pais MS & Brodelius PE (1998) An aspartic proteinase from flowers of *Centaurea calcitrapa*. Purification,

- characterization, molecular cloning, and modelling of its three-dimensional structure. In: *Aspartic Proteinases* (MNG James, ed.), pp.: 465-472. Plenum Press. New York. USA.
- Doran PM (2000) Foreign protein production in plant tissue cultures. *Curr. Opin. Biotechnol.* 11: 199-204.
- Dougall DK (1980) Nutrition and metabolism. In: *Plant Tissue Culture as a Source of Biochemicals* (EJ Staba, ed.), pp: 21-58. CRC Press. Boca ratón. Florida. USA.
- Dunaevsky YE, Sarbakanova ST & Belozersky MA (1989) Wheat seed carboxypeptidase and join action on gliadin of proteases from dry and germinating seeds. *J. Exp. Bot.* 40: 1323-1329.
- Dziuba J, Minkiewicz P, Nalecz D, Iwaniak A (1999) Database of biologically active peptide sequences. *Die Nahrung* 43: 190-195.
- Eck A (1990) La coagulación de la leche. En: *El Queso* (A Eck, ed.), pp.: 3-20. Ediciones Omega. Barcelona. España.
- Elleman CJ & Dickinson HG (1990) The role of exine coating in pollen-stigma interactions in *Brassica oleracea* L. *New Phytol.* 114: 511-518.
- Elleman CJ & Dickinson HG (1994) Pollen-stigma interactions during sporophytic self-incompatibility in *Brassica oleracea*. In: *Genetic Control of Self-incompatibility and Reproductive Development in Flowering Plants* (EG Williams, AE Clarke & RB Knox, eds.), pp.: 67-87. Kluwer Academic Publishers. Dordrecht.
- El-Negoumy SI, El-Ansari MAI, Saleh NAM (1987) Flavonoid glycosides of *Cynara scolymus*. *Fitoterapia* 58: 178-180.
- Elpidina EN, Dunaevsky YE & Belozersky MA (1990) Protein bodies from buckwheat seed cotyledons: isolation and characteristics. *J. Exp. Bot.* 41: 969-977.
- Ertola RJ, Giulietti AM & Castillo FJ (1994) Design, formulation and optimization of media. In: *Bioreactors Systems Design* (J Asenjo & J Merchuk, eds.), pp.: 89-137. Marcel Dekker. New York. USA.
- Espino FJ & Vazquez AM (1985) Phytohormone influence on the expression of two isozyme systems in *Nicotiana suaveolens* calluses. *Plant Sci.* 39: 195-198.
- FAO (1986) Fundamentos químicos, físicos y microbiológicos en la elaboración y maduración de quesos. En: *Manual de Elaboración de Quesos*. Capítulo 6. Equipo Regional de Fomento y Capacitación en Lechería de FAO para América Latina. Santiago. Chile.
- FAO/OMS (1973) Code des Principes Concernant le Lait et les Produits Latieres. CAC M/1, 137 pp.
- Faro CJ, Alface JS & Pires EV. (1987) Purification of a protease from the flowers of *Cynara cardunculus* L. *Ciênc.Biol.* 12(5A): 201.

- Faro CJ, Moir AJG & Pires EV. (1992) Specificity of a milk clotting enzyme extracted from the thistle *Cynara cardunculus* L.: action on oxidised insulin and κ -casein. *Biotechnol. Lett.* 14: 841-846.
- Faro CJ, Ramalho-Santos M, Veríssimo P, Pissarra J, Frazão C, Costa J, Tang J & Pires E (1998) Structural and functional aspects of cardosins. In: *Aspartic Proteinases* (MNG James, ed.), pp.: 423-433. Plenum Press. New York. USA.
- Faro CJ, Ramalho-Santos M, Vieira M, Mendes A, Simões I, Andrade R, Veríssimo P, Lin X, Tang J & Pires E (1999) Cloning and characterization of cDNA encoding cardosin A, an RGD-containing plant aspartic proteinase. *J. Biol. Chem.* 274: 28724-28729.
- Faro C, Veríssimo P, Lin Y, Tang J & Pires E (1995) Cardosin A and B, aspartic proteases from the flowers of cardoon. In: *Aspartic Proteinases: Structure, Function, Biology and, Biomedical Implications* (K Takahashi, ed.), pp.: 373-377. Plenum Press. New York. USA.
- Fernández-Salguero J & Sanjuán E (1999) Influence of vegetable and animal rennet on proteolysis during ripening in ewes' milk cheese. *Food Chem.* 64: 177-183.
- Fett-Neto AG, Zhang WY & DiCosmo F (1994) Kinetics of taxol production, growth and nutrient uptake in cell suspensions of *Taxus cuspidata*. *Biotechnol. Bioeng.* 44: 205-210.
- Feverieiro P, Cabral JMS, Fonseca M, Novais JM & Pais S. (1986) Callus and suspension culture of *Sylibum marianum* biosynthesis of proteins with clotting activity. *Biotechnol. Lett.* 8: 19-24.
- Fiat AM, Migliore-Samour D, Jolles P, Drouet L, Sollier CB & Caen J (1993) Biologically active peptides from milk proteins with emphasis on two examples concerning antithrombotic and immunomodulating activities. *J. Dairy Sci.* 76: 301-310.
- Figueiredo AC, Feverieiro P, Cabral JMS, Novais JM & Pais S. (1987) Callus and suspension cultures for biomass production of *Cynara cardunculus* (Compositae). *Biotechnol. Lett.* 9: 213-218.
- Flocco CG, Alvarez MA & Giulietti AM (1998) Peroxidase production *in vitro* by *Armoracia lapathifolia* (horseradish)-transformed root cultures: effect of elicitation on level and profile of isoenzymes. *Biotechnol. Appl. Biochem.* 28: 33-38.
- Flocco CG & Giulietti AM (1999) Detoxification of phenol by alfalfa seedling. In: *Proceedings of the Global Symposium on Recycling Waste Treatment and Clean Technology. Vol III* (I Gaballah, J Hager & R Solozabal, eds.) 2259-2265. ISBN 84-92-3445-55.
- Foltmann B & Szecsi PB (1998) Chymosin. In: *Handbook of Proteolytic Enzymes*, eds. AJ Barrett, ND Rawlings & JF Woessner, pp: 815-819. Academic Press. London. UK.
- Foltmann B (1993) General and molecular aspects of rennets. In: *Cheese: Chemistry, Physics and Microbiology. Vol 1*, ed. PF Fox, pp: 37-68. Chapman S Hall. London. UK.

- Fowler M & Stafford A (1992) Plant cell culture, process systems and product synthesis. In: *Plant Biotechnology: Comprehensive Biotechnology. Second Supplement*, (M Fowler, G Warren & M Moo-Young, eds.) pp.: 79-98. Pergamon Press. England.
- Frazão C, Bento I, Costa J, Soares CM, Veríssimo P, Faro C, Pires E, Cooper J & Carrondo MA (1999) Crystal structure of cardosin A, a glycosylated and Arg-Gly-Asp-containing aspartic proteinase from the flowers of *Cynara cardunculus* L. *J. Biol. Chem.* 274: 27694-27711.
- Frith GJT, Peoples MB & Dalling MJ (1978) Proteolytic enzymes in green wheat leaves III. Inactivation of acid proteinase by diazoacetyl-DL-norleucine methyl ester and 1,2-epoxy-3-(*p*-nitrophenoxy)-propane. *Plant Cell Physiol.* 19: 819-824.
- Fujikura Y & Karssen CM (1995) Molecular studies on osmoprimed seeds of cauliflower: a partial amino acid sequence of a vigour related protein and osmopriming enhanced expression of putative aspartic protease. *Seed Sci. Res.* 5: 177-181.
- Fujita Y, Hara Y, Suga C & Morimoto T (1981) Production of shikonin derivatives by cell suspension cultures of *Lithospermum erythrorhizon*. *Plant Cell Rep.* 1: 61-63.
- Galleschi L, Capocchi A, Giannoni P & Floris C (1989) Proteinase activities in quiescent and germinating seeds of *xHaynaldoticum sardoum*. *Physiol. Plant.* 75: 1-6.
- Gamborg OL (1970) The effect of amino acids and ammonium on the growth of plant cells in suspension culture. *Plant Physiol.* 45: 372-375.
- Gamborg OL, Miller RA & Ojima K (1968) Nutrient requirements of suspension cultures of soybean root cells. *Exp. Cell Res.* 50: 151-158.
- García-Martínez JL & Moreno J (1986) Proteolysis of ribulose 1,5-biphosphate carboxylase /oxygenase in Citrus leaf extracts. *Physiol. Plant* 66: 377-383
- Garg KG & Virupaksha TK (1970) Acid protease from germinated sorghum. 2. Substrate specificity with synthetic peptidos and ribonuclease A. *Eur. J. Biochem.* 17: 13-18
- Gazaryan IG, Urmantseva VV, Veryovkin AN & Fechina VA (1991) Peroxidase preparation from *Medicago sativa* L cell culture. In: *Biochemical, Molecular and Physiological Aspects of Plant Peroxidases* (J Lobarzewski, H Greppin, C Penel & T Gaspar, eds.), pp.: 505-506. University of Geneve. Switzerland.
- Gebhardt R (1998) Inhibition of cholesterol biosynthesis in primary cultured rat hepatocytes by artichoke (*Cynara scolymus* L.) extracts. *J. Pharmacol. Exp. Therap.* 286: 1122-1128.
- George EF (1987a). Factors affecting growth and morphogenesis. I. Genotype and the physical environment. In: *Plant Propagation by Tissue Culture. Part I: The Technology* (E. George, ed.), pp.: 183-230. 2nd Ed. Exegetics. Edington. UK.
- George EF (1987b). Plant growth regulators. In: *Plant Propagation by Tissue Culture. Part I: The Technology* (E. George, ed.), pp.: 420-463. 2nd Ed. Exegetics. Edington. UK.

- Gil Díaz V, Martínez Turiño S & Mas Castellanos L (1998) Transformación genética. In: *Propagación y Mejora Genética de Plantas por Biotecnología* (JN Pérez Ponce, ed.), pp.: 369-390. Instituto de Biotecnología de las Plantas. Villa Clara. Cuba.
- Giulietti AM & Ertola RJ (1999) Biotechnological strategies for production of plants and secondary metabolites of pharmaceutical interest. *Acta Hort.* 502: 269-280.
- Glathe S, Kervinen J, Nimtz M, Li G, Tobin G, Copeland T, Ashford D, Wlodawer A & Costa J (1998) Transport and activation of the vacuolar aspartic proteinase phytepsin in barley (*Hordeum vulgare* L.). *J. Biol. Chem.* 273: 31230-31236.
- Gómez Kosky R (1998a) Cultivo de células y tejidos. In: *Propagación y Mejora Genética de Plantas por Biotecnología*, ed. JN Pérez Ponce, pp: 25-44. Instituto de Biotecnología de las Plantas. Villa Clara. Cuba.
- Gómez Kosky R (1998b) Embriogénesis somática. In: *Propagación y Mejora Genética de Plantas por Biotecnología*, ed. JN Pérez Ponce, pp: 57-79. Instituto de Biotecnología de las Plantas. Villa Clara. Cuba.
- Gray WM & Estelle M (1998) Biochemical genetics of plant growth. *Curr. Opin. Biotechnol.* 9: 196-201.
- Guevara MG, Oliva CR, Machinandiarena M & Daleo GR (1999) Purification and properties of an aspartic protease from potato tuber that is inhibited by a basic chitinase. *Physiol. Plant.* 106: 164-169.
- Gupta CB & Eskin NAM (1977) Potencial use of vegetable rennet en the production of cheese. *Food Technol.* 77: 62-65.
- Guruprasad K, Tormakangas K, Kervinen J & Blundell TL (1994) Comparative modelling of barley-grain aspartic proteinase: a structural rationale for observed hydrolytic specificity. *FEBS Lett.* 352: 131-136
- Hammond J (1999) Overview: the many uses and applications of transgenic plants. In: *Plant Biotechnology. New Products and Applications* (J Hammond, P McGarvey & V Yusibov, eds.), pp.: 1-20. Springer-Verlag. Berlin Heidelberg. Germany.
- Hammouda FM, Seif-EI-Nasr MM, Shahat AA (1993) Flavonoids of *Cynara scolymus* L. cultivated in Egypt. *Plant Foods Hum. Nutr.* 44: 163-169.
- Harbaoui Y, Samijn G, Welvaert W & Debergh P (1982) Assainissement viral de l'artichaut (*Cynara scolymus* L.) par la culture in vitro d'apex méristématiques. *Phytopath. Medit.* 21: 15-19.
- Hashimoto H, Nishi R, Uchimiya H & Kato A (1992) Nucleotide sequence of a cDNA encoding aspartic proteinase in rice. *EMBO Data Library D12777*.
- Heimgartner U, Pietrzak M, Geertsen R, Brodelius P, Da Silva Figueredo AC & Pais MSS (1990) Purification and partial characterization of milk clotting proteases from flowers of *Cynara cardunculus*. *Phytochemistry* 29: 1405-1410.
- Heller R (1953) Recherches sur la nutrition minerale des tissus vegetaux cultives *in vitro*. *Ann. Sci. Nat. Bot. Biol. Veg.* 14: 1-223.
- Heller R (1954) Les besoins mineraux des tissus en culture. *Année Biolog.* 30: 260-281.

- Herbers K & Sonnewald U (1999) Production of new/modified proteins in transgenic plants. *Curr. Opin. Biotechnol.* 10: 163-168.
- Hiraiwa N, Kondo M, Nishimura M & Hara-Nishimura I (1997) An aspartic endopeptidase is involved in the breakdown of propeptides of storage proteins in protein-storage vacuoles of plants. *Eur. J. Biochem.* 246: 133-141.
- Hofmann T, Dunn BM & Fink AL (1984) Cryoenzymology of penicillopepsin. Appendix: Mechanism of action of aspartyl proteinases. *Biochem.* 23: 5247-5256.
- Huang L & Murashige T (1977) Plant tissue culture media: major constituents; their preparation and some applications. *Tissue Cult. Assoc. Man.* 3: 539-545.
- Illanes A (1994) *Biología de Enzimas*. OEA. Editorial Universidad de Valparaíso de la Universidad Católica de Valparaíso. Chile
- Jiménez González E (1998) Generalidades del cultivo *in vitro*. In: *Propagación y Mejora Genética de Plantas por Biotecnología* (JN Pérez Ponce, ed.), pp.: 13-24. Instituto de Biotecnología de las Plantas. Villa Clara. Cuba.
- Joersbo M, Andersen JM, Okkels FT & Pedersen MG (1989) Effect of extracellular peroxidases on growth of carrot and sugar beet suspension cells. *J Plant Physiol.* 135: 369-372.
- Jones AM (1994) Auxin binding proteins. *Annu. Rev. Plant Physiol. Mol. Biol.* 45: 393-420.
- Kanakakis AG & Demetriou K (1993) *In vitro* shoot regeneration of globe artichoke from shoot apices treated with thidiazuron and from mature zygotic embryos treated with cytokinins. *J. Hort. Sci.* 68: 439-445.
- Kato Y, Uozumi N, Kimura T, Honda HI & Kobayashi T (1991) Enhancement of peroxidase production and excretion from horseradish hairy roots by light, NaCl and peroxidase-adsorption in situ. *Plant Tiss. Cult. Lett.* 8: 158-165.
- Kaur-Sawhney R & Galston AW (1986) The role of polyamines in the regulation of proteolysis. In: *Plant Proteolytic Enzymes*. Vol. I (MJ Dalling, ed.), pp.: 141-148. CRC Press Inc. Boca Ratón. Florida. USA.
- Kervinen J, Sarkkinen P, Kalkkinen N, Mikola L & Saarma M (1993) Hydrolytic specificity of the barley grain aspartic proteinase. *Phytochemistry* 32: 799-803.
- Kervinen J, Tobin GJ, Costa J, Waugh DS, Wlodawer A & Zdanov A (1999) Crystal structure of plant aspartic proteinase prophytepsin: inactivation and vacuolar targeting. *EMBO J.* 18: 3947-3955.
- Kervinen J, Tormakangas K, Runeberg-Roos P, Guruprasad K, Blundell T & Teeri TH (1995) Structure and possible function of aspartic proteinases in barley and others plants. In: *Aspartic Proteinases: Structure, Function, Biology and Biomedical Implications* (K Takahashi, ed.), pp.: 241-254. Plenum Press. New York.
- Kevers C, Sticher L, Penel C, Greppin H & Gaspar T (1983) The effect of ergosterol, ergocalciferol and cholecalciferol on calcium-controlled peroxidase secretion by sugarbeet cells. *Physiol Plant.* 57: 17-20.

- Khan AR & James MNG (1998) Molecular mechanisms for the conversion of zymogens to active proteolytic enzymes. *Protein Sci.* 7: 815-836.
- Kim JW & Minamikawa T (1997) Expression and characterization of endopeptidase in suspension-cultured cells of french bean. *Biosci. Biotechnol. Biochem.* 61: 113-117.
- Kim YH & Yoo YJ (1996) Peroxidase production from carrot hairy root cell culture. *Enz. Microbiol. Technol.* 18: 531-535.
- Kinnersly AM & Dougall DK (1980) Correlation between the nicotine content of tobacco plants and callus culture. *Planta* 154: 447-453.
- Knorr D & Miazga SM (1987) Production of protease from cell cultures of common milweed (*Asclepias syriaca* L.). *J. Agric. Food Chem.* 35: 621-624.
- Kobayashi H, Kim H, Itoh T, Sasamo K, Kusakabe I & Murakami K (1994) Screening for milk-clotting enzyme from basidiomycetes. *Biosci. Biotechnol. Biochem.* 58: 440-441.
- Krikorian AD (1991) Medios de cultivo: generalidades, composición y preparación. En: *Cultivos de Tejidos en la Agricultura: Fundamentos y Aplicaciones* (WM Roca & LA Mroginski, eds.), pp.: 41-70. CIAT. Cali. Colombia.
- Krikorian AD (1995) Hormones in tissue culture and micropropagation. In: *Plant Hormones: Physiology, Biochemistry and Molecular Biology* (PJ Davies, ed.), pp.: 774-796. Kluwer Acad. Publ. The Netherlands.
- Kurz WGW, Chatson RB & Constabel F (1985) Biosynthesis and accumulation of indole alkaloids in *Catharanthus roseus* cultivars. In: *Primary and Secondary Metabolism of Plant Cell Cultures* (KH Neuman, W Barz & E Reinhard, eds.) pp.: 143-53. Springer-Verlag. Berlin. Germany.
- Kuwabara T & Suzuki K (1995) Reversible changes in conformation of the 23-kDa protein of photosystem II and their relationship to the susceptibility of the protein to a proteinase from photosystem II membranes. *Plant Cell Physiol.* 36: 495-504.
- Kwak SS, Kim SK, Lee MS, Jung KH, Park IH & Liu JR (1995) Acidic peroxidases from suspension-cultures of sweet potato. *Phytochemistry* 39: 981-984.
- Laemmli UK (1970) Cleavage of structural proteins during the assembly of the head of bacteriophage T4. *Nature* 227: 680-685.
- Lauzer D & Vieth J (1990) Micropropagation of seed-derived plants of *Cynara scolymus* L. cv. Green Globe. *Plant Cell Tiss. Organ Cult.* 21: 237-244.
- Lawless HT & Heymann H (1999) *Sensory Evaluation of Food*. Aspen Publ. USA.
- Lee M & Phillips RL (1988) The cromosomal basis of somaclonal variation. *Ann. Rev. Plant Physiol. Mol. Biol.* 39: 413-437.
- Lenoir J, Auberger B & Gripon JC (1979) Les caracteres du systeme proteolytique de *Penicillium caseicolum*. III. Caracterisation d' une protease acide. *Lait* 585/586: 244-268.

- Libbenga KR & Mennes AM (1995) Hormones binding and signal transduction. In: *Plant Hormones: Physiology, Biochemistry and Molecular Biology* (PJ Davies, ed.). pp.: 272-297. Kluwer Acad. Publ. The Netherlands.
- Lima Costa ME, van Gulik WM, ten Hoopen HJG, Pais MSS & Cabral JMS (1996) Protease and phenol production of *Cynara cardunculus* L. cell suspension in a chemostat. *Enz. Microbiol. Technol.* 19: 493-500.
- Linnaeus C (1753) *Species Plantarum*, 2.
- Litz RE & Jarret RL (1991) Regeneración de plantas en el cultivo de tejidos: embriogénesis somática y organogénesis. En: *Cultivos de Tejidos en la Agricultura: Fundamentos y Aplicaciones* (WM Roca & LA Mroginski, eds.), pp.: 143-152. CIAT. Cali. Colombia.
- López LMI (1995) Aislamiento, purificación y caracterización de las proteasas presentes en el látex de frutos de *Maclura pomifera* (Raf.) Schneid. (*Moraceae*). Tesis. Facultad de Ciencias Exactas, Universidad Nacional de La Plata. Argentina.
- López LMI, Sequeiros C, Natalucci CL, Brullo A, Maras B, Barra D & Caffini NO (2000) Purification and characterization of macrodontan I, a cysteine peptidase from unripe fruits of *Pseudonanas macrodontes* (Morr.) Harms (*Bromeliaceae*). *Prot. Expr. Purif.* 18: 133-140.
- Loukas S, Varoucha D, Zioudrou C, Streaty RA, Klee WA (1983) Opioid activities and structures of α -casein-derived exorphins. *Biochem.* 22: 4567-4573.
- Macedo YQ, Faro CJ & Pires EM (1993) Specificity and kinetics of the milk-clotting enzyme from cardoon (*Cynara cardunculus* L.) toward bovine κ -casein. *J. Agric. Food Chem.* 41: 1537-1540.
- Macek T, Macková M, Oéénásková J, Demnerová K, Pazlarová J & Koen V (1996) Peroxidase isoenzyme pattern and total activity changes in plant cells cultivated in vitro under abiotic stress. In: *Plant Peroxidases: Biochemistry and Physiology* (C Obinger, U Burner, R Ebermann, C Penel & H Greppin, eds.), pp.: 380-385. Universidad de Ginebra. Suiza
- Mader M & Walter C (1986) De-novo synthesis and release of peroxidases in cell suspension cultures of *Nicotiana tabacum* L. *Planta* 169: 273-277.
- Makowski GS & Ramsby ML (1997) Protein molecular weight determination by sodium dodecyl sulfate polyacrylamide gel electrophoresis. In: *Protein Structure, a Practical Approach* (TE Creighton, ed.), pp.: 1-26. Second edition. IRL Press. Oxford University Press. Oxford. UK.
- Mannerlöf M, Tuveesson S, Stern P & Tenning P (1997) Transgenic sugar beet tolerant to glyphosate. *Euphytica* 94: 83-91.
- Mantell SH & Smith H (1983) Cultural factors that influences secondary metabolites accumulation in plant cell and tissue culture. In: *Plant Biotechnology* (SH Mantell & H Smith, eds.), pp.: 75-108. Cambridge University Press. Cambridge.
- Marín JA (1993) Micropropagación de especies frutales. *HortoFrutic.* 1: 56-62.

- Marten I, Lohse G & Hedrich R (1991) Plant growth hormones control voltage dependent activity of anion channels in plasma membrane in guard cells. *Nature* 353: 759-763.
- Martin P (1984) Hydrolysis of the synthetic chromophoric hexapeptide Leu-Ser-Phe(NO₂)-Nle-ala-Leu-oMe catalysed by bovine pepsin A. *Biochem. Biophys. Acta* 791: 28-36.
- Maurer HR, Hozumi M, Honma Y & Okabe-Kado J (1988) Bromelain induces the differentiation of leukemic cells *in vitro*: an explanation for its citostatic effects? *Planta Medica* 1988: 377-380.
- McKeon TA, Fernández-Maculet JC & Yang SF (1995) Biosynthesis and metabolism of ethylene. In: *Plant Hormones: Physiology, Biochemistry and Molecular Biology* (PJ Davies, ed.), pp.: 118-139. Kluwer Acad. Pub. The Netherlands.
- Medora RS, Campbell JM & Mell GP (1973) Proteolytic enzymes in papaya tissue cultures. *Lloydia* 36: 214-216.
- Melo NS, Larsen E, Welinder KG & Fevereiro PS (1996) Characterisation of two major cationic peroxidases from cell suspension cultures of *Vaccinium myrtillus*. *Plant Science*. 122: 1-9.
- Michaud D & Asselin A (1995) Application to plant proteins of gel electrophoretic methods. *J. Chromatog. A*. 698: 263-279.
- Mikkonen A (1986) Activities of some peptidases and proteinases in germinating kidney bean *Phaseolus vulgaris*. *Physiol. Plant.* 68: 282-286.
- Mikola L & Mikola J (1986) Occurrence and properties of different types of peptidases in higher plants. In: *Plant Proteolytic Enzymes*. Vol I (MJ Dalling, ed.), pp.: 98-117. CRC Press Inc. Boca Raton. Florida. USA.
- Misawa M (1985) Production of useful plant metabolites. In: *Advances in Biochemical Engineering/Biotechnology* (A Fiechter, ed.). Vol 31, pp.: 59-88. Springer-Verlag. Berlin.
- Moncousin C (1981) Multiplication végétative accéléré. *Revue Hort. Suisse* 54, 105-116.
- Moreno OA, Vazquez-Duhalt R & Ochoa L (1989) Peroxidase activity in calluses and cell suspension cultures of radish *Raphanus sativus* var. Cherry Bell. *Plant Cell Tiss. Org. Cult.* 18: 321-327.
- Morris P, Scragg AH, Smart NJ & Stafford A (1985) Secondary product formation by cell suspension cultures. In: *Plant Cell Culture, a Practical Approach* (RA Dixon, ed.), pp.: 127-167. IRL Press Ltd. Oxford. UK.
- Morzadec JM & Hourmant A (1997). *In vitro* rooting improvement of globe artichoke (cv. Camus de Bretagne) by GA₃. *Scientia Hort.* 72: 59-62.
- Murashige T & Skoog F (1962) A revised medium for rapid growth and bioassays with tobacco tissue culture. *Physiol. Plant.* 15: 473-97.
- Mutlu A & Gal S (1999) Plant aspartic proteinases: enzymes on the way to a function. *Physiol. Plant.* 105: 569-576.

- Mutlu A, Chen X, Reddy S & Gal S (1999) The aspartic proteinase of *Arabidopsis thaliana* is expressed in seeds and localized in the protein bodies. *Seed Sci. Res.* 9: 75-84.
- Nakagawa K, Konagai A, Fukui H & Tabata M (1984) Release and crystallization of berberine in the liquid medium of *Thalictrum minus* cell suspension culture. *Plant Cell Rep.* 3: 254-257.
- Natalucci CL, Brullo A, López LMI, Hillal RM & Caffini NO (1996) Macrodontain, a new protease isolated from fruits of *Pseudananas macrodentes* (Morr.) Harms (*Bromeliaceae*). *J. Food Biochem.* 19: 443-454.
- NC-IUBMB (1992) Enzyme Nomenclature 1992. *Recommendations of the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology on the Nomenclature and Classification of Enzymes*. Academic Press. Orlando. Florida. USA.
- Nigra HM, Alvarez MA & Giulietti AM (1990) Effect of carbon and nitrogen sources on growth and solasodine production in batch suspension cultures of *Solanum eleagnifolium* Cav. *Plant Cell Tiss. Org. Cult.* 21: 55-60.
- Ordas RJ, Tavazza R & Ancora G (1990) *In vitro* morphogenesis in globe artichoke (*Cynara scolymus* L.) *Plant Sci.* 71: 223-237.
- Ordas RJ, Tavazza R & Ancora G (1991) Callus formation from isolated globe artichoke (*Cynara scolymus* L.) suspension protoplasts. *Plant Sci.* 77: 253-259.
- Padmanabhan S, Chitre A & Shastri N (1993) Milk clotting protease isolated from *Dieffenbachia maculata*. *Die Nahrung* 37: 99-101.
- Paniego NB (1995) Producción de lactonas sesquiterpénicas por cultivo in vitro de células y tejidos vegetales. *Tesis*. Facultad Farmacia y Bioquímica. UBA. Argentina
- Panizzi L & Scarpati M (1954) Constitution of cynarine, the active principle of the artichoke. *Nature* 174: 1062.
- Paquet J & Gripon JC (1980) Intracellular peptide hydrolases of *Penicillium roqueforti*. *Milchwiss.* 35: 72-74.
- Pardo MF, López LMI, Canals F, Avilés FX, Natalucci CL & Caffini NO (2000) Purification of balansain I, an endopeptidase from unripe fruits of *Bromelia balansae* Mez (*Bromeliaceae*). *J. Agric. Food Chem.* 48: 3795-3800.
- Park H, Yamanaka N, Mikkonen A, Kusakabe I & Kobayashi H. (1996) Purification and characterization of aspartic proteinase from sunflower seeds. *Gene Bank* AB025359.2. *Accession* BAA76870. No publicado.
- Parkinson M, Cotter T & Dix PJ (1990) Peroxidase production by cell suspension and hairy root cultures of horseradish (*Armoracia rusticana*). *Plant Sci.* 66: 271-277.
- Pécaut P & Foury C (1992) L'artichaut. In: *Amélioration des Espèces Végétales Cultivées: Objectifs et Critères de Sélection* (A Gallais & H Bannerot, eds.), pp.: 460-469. INRA. Paris. Francia.
- Pécaut P, Dumas de Vaulx R & Lof, H (1983) Virus-free clones of globe artichoke (*Cynara scolymus*) obtained after *in vitro* propagation. *Acta Hort.* 131, 303-309.

- Pérez Ponce JN (1998) *Propagación y Mejora genética de Plantas por Biotecnología*. Instituto de Biotecnología de las Plantas. Villa Clara. Cuba.
- Piñol MT & Palazón J (1993) Metabolismo secundario. In: *Fisiología y Bioquímica Vegetal*, (J Azcon-Bieto & M Talon, eds.), pp.: 237-283. Interamericana. Mc Graw-Hill. España.
- Pitta-Alvarez SI, Todríguez Talou J, Flocco C, Spollansky T, Desmarchelier C & Giulietti AM (1999) Effect of elicitation on tropane alkaloid production and release in transformed root cultures of *Brugmansia candida*. *Acta Hort.* 502: 133-138.
- Polanowski A, Wilusz T, Kolaczowska MK, Wieczorek M, Wilimowska-Pelc A (1985) Purification and characterization of aspartic proteinases from *Cucumis sativus* and *Cucurbita maxima* seed. In: *Aspartic Proteinases and their Inhibitors* (V Kostka, ed.), pp.: 49-52. Walter de Gruyter, New York. USA.
- Pollard JW & Walker JM (1990) *Plant Cell and Tissue Culture. Methods in Molecular Biology*. Vol. 6. Humana Press Inc. Clifton, New Jersey. USA.
- Preziosi P & Loscalzo B (1956) L'azione sulla coleresi, sul colesterolo ematico e sulla lipoidosi colesterolica del principio attivo del carciofo e di sostanze ad esse correlate. *Fitoterapia* 27: 266-272.
- Priolo NS, López LMI, Arribére MC, Natalucci CL & Caffini NO (1991) New purified plant proteinases for the food industry. *Acta Alim. (Budapest)* 20: 189-196.
- Priolo NS, Morcelle del Valle S, Arribére MC, López LMI & Caffini NO (2000) Isolation and characterization of a cysteine protease from the latex of *Araujia hortorum* fruits. *J. Prot. Chem.* 19: 39-49.
- Radlowski M, Kalinowski A, Adamczyk J, Królikowski Z & Bartkowiak S (1996) Proteolytic activity in the maize pollen wall. *Physiol. Plant.* 98: 172-178.
- Ramalho-Santos M, Pissarra J, Pires E & Faro C (1998a) Cardosinogen A, the precursor form of the major aspartic proteinase from cardoon. In: *Aspartic Proteinase* (NMG James, ed.), pp.: 253-258. Plenum Press. New York. USA.
- Ramalho-Santos M, Pissarra J, Veríssimo P, Pereira S, Salema R, Pires E & Faro C (1997) Cardosin A, an abundant aspartic proteinase, accumulates in protein storage vacuoles in the stigmatic papillae of *Cynara cardunculus* L. *Planta* 203: 204-212.
- Ramalho-Santos M, Veríssimo P, Cortes L, Samyn B, Van Beeumen J, Pires E & Faro C (1998b) Identification and proteolytic processing of procardosin A. *Eur. J. Biochem.* 255: 133-138.
- Rawlings ND & Barrett AJ (1995) Families of aspartic peptidases, and those of unknown catalytic mechanism. *Meth. Enzymol.* 248: 105-180.
- Rhodes MJC, Parr AJ, Giulietti AM & Aird ELH (1994) Influence of exogenous hormones on the growth and secondary metabolite formation in transformed root cultures. *Plant Cell Tiss. Org. Cult.* 38: 143-151.

- Rice R, Alderson P, Hall J & Ranchhod A (1992) Micropropagation: principles and commercial practice. In: *Plant Biotechnology: Comprehensive Biotechnology*. Second Supplement (M Fowler, G Warren & M Moo-Young, eds.), pp.: 130-149. Pergamon Press. England.
- Richter L & Kipp P (1999) Transgenic plants as edible vaccines. In: *Plant Bioetecology. New Products and Appications* (J Hammond, P McGarvey & V Yusibov, eds.), pp.: 159-176. Springer-Verlag. Berlin. Heidelberg. Germany.
- Robert ML, Reyes J & Loyola VM (1991) Biosíntesis y bioconversión de metabolitos secundarios por células cultivadas in vitro. En: *Cultivos de Tejidos en la Agricultura* (WM Roca & LA Mroginski, eds.), pp.: 211-238. CIAT. Cali. Colombia.
- Roberts SC & Shuler ML (1997) Large-scale cell culture. *Curr. Opin. Biotechnol.* 8: 154-159.
- Robins R, Walton N, Parr AJ, Lindsay E, Aird H, Rhodes MJC & Hamill JD (1994) Progress in the genetic engineering of the pyridine and tropane alkaloid biosynthetic pathways of solanaceous plants. In: *Genetics Engineering of Plant Secondary Metabolism* (BE Ellis, GW Kuroki & HA Stafford, eds.), pp.: 1-33. Plenum Press. New York. USA.
- Roca WM & Mroginski LA (1991) *Cultivo de Tejidos en la Agricultura: Fundamentos y Aplicaciones*. CIAT (Centro Internacional de Agricultura Tropical). Cali. Colombia.
- Rodrigo I, Vera P & Conejero V (1989) Degradation of tomato pathogenesis-related proteins by an endogenous 37-kDa aspartyl endoproteinase. *Eur. J. Biochem.* 184: 663-669.
- Rodrigo I, Vera P, van Loon LC & Conejero V (1991) Degradation of tobacco pathogenesis-related proteins: evidence for conserved mechanisms of degradation of pathogenesis-related proteins in plants. *Plant Physiol.* 95: 616-622.
- Rodríguez JP, Martinengo I, Murray R, Daorden ME & Triccó HR (1996) *El cultivo del alcaucil*. Proyecto de Diversificación Productiva Serie B 5. pp: 1-35. INTA. Secretaría de Agricultura, Pesca y Alimentación. Argentina.
- Roller U (1978) Selection of plant tissue cultures of *Catharantus roseus* with high content of serpentine and ajmalicine. In: *Production of Natural Compounds by Cell Culture Methods* (AW Alferman & E Reinhard, eds.), pp.: 95-108. GSF München. Germany
- Rossi V & De Paoli G (1992) Micropropagation of artichoke (*Cynara scolymus*). In: *Biotechnology in Agriculture and Forestry, Vol 19. High-Tech and Micropropagation III* (YPS Bajaj, ed.), Vol. 19, pp.: 118-134. Springer-Verlag, Berlín. Germany.
- Rottenberg A & Zohary D (1996) The wild ancestry of cultivated artichoke. *Gen. Res. Crop Evol.* 43: 53-58.
- Runeberg-Roos P & Saarma M. (1998) Phytpepsin, a barley vacuolar aspartic proteinase, is highly expressed during autolysis of developing tracheary elements and sieve cells. *Plant J.* 15: 139-145.

- Runeberg-Roos P, Kervinen J, Kovaleva V, Raikhe NV & Gal S. (1994) The aspartic proteinase of barley is a vacuolar enzyme that processes probarley lectin in vitro. *Plant Physiol.* 105: 321-329.
- Runeberg-Roos P, Törmäkangas K & Östman A. (1991) Primary structure of a barley-grain aspartic proteinase. *Eur. J. Biochem.* 202: 1021-1027.
- Sá FV & Barbosa M (1972) Cheese-making with a vegetable rennet from cardo (*Cynara cardunculus*). *J. Dairy Res.* 39: 335-343.
- Saitou T, Kamada H & Harada H (1991) Isoperoxidase in hairy roots and regenerated plants of horseradish (*A Armoracia laphatifolia*). *Plant Sci.* 75: 195-201.
- Salisbury FB & Ross CW (1994) *Fisiología Vegetal*. pp: 395-451. Grupo Editorial Iberoamericana. México.
- Salmia MA (1981) Proteinase activities in resting and germinating seeds of Scots pine, *Pinus sylvestris*. *Physiol. Plant.* 53: 39-47.
- Salmia MA, Nyman SA, Mikola JJ (1978) Characterization of the proteinases present in germinating seeds of Scots pine *Pinus sylvestris*. *Physiol. Plant.* 42: 252-256
- Sarah G, de la Motte RS & Wagner F (1989) Protease assay methods. In: *Proteolytic Enzymes: a Practical Approach* (RJ Beynon & JS Bond, eds.), pp.: 25-55. IRL Press. Oxford. UK.
- Sarkkinen P, Kalkkinen N, Tilgmann C, Siuro J, Kervinen J & Mikola L (1992) Aspartic proteinase from barley grains is related to mammalian lysosomal cathepsin D. *Planta (Berlin)* 186: 317-323.
- Schaller A. & Ryan CA (1996) Molecular cloning of a tomato leaf cDNA encoding an aspartic proteinase, a systemic wound response protein. *Plant Mol. Biol.* 31: 1073-1077
- Scheidtmann KH, Reinartz S & Schlebusch H (1997) Immunological detection of proteins of know sequence. In: *Protein Structure: a Practical Approach* (TE Creighton, ed.), pp.: 59-89. 2nd. Ed. IRL Press. Oxford University Press. Oxford. UK.
- Schenk RV & Hildebrandt AC (1972) Medium and techniques for induction and growth of monocotyledonous and dicotyledonous plant cell cultures. *Can. J. Bot.* 50: 199-204.
- Schiel O, Jarchow-Redecker K, Piehl GW, Lehmann J & Berlin J (1984) Increased formation of cinnamoyl putrescines by feedbatch fermentation of cell suspension cultures of *Nicotiana tabacum*. *Plant Cell Rep.* 3: 18-20.
- Schnall J, Hwang C, Cooke T & Zimmerman J (1991) An evaluation of gene expression during somatic embryogenesis of two temperature-sensitive carrot variants unable to complete embryo development. *Physiol. Plant.* 82: 498-504.
- Scott R (1992) Fabricación de quesos. Ed. Acirbia.España.
- Scragg A (1990) Fermentation systems for plant cells. In: *Secondary Products from Plant Tissue Culture* (B Charlwood & M Rhodes, eds.), pp.: 243-263. Clarendon Press. Oxford. UK.

- Scragg A (1992) Bioreactors for the mass cultivation of plant cells. In: *Plant Biotechnology: Comprehensive Biotechnology*. Second Supplement (M Fowler, G Warren & M Moo-Young, eds.), pp.: 45-78. Pergamon Press. England.
- Sesto P & van Huystee R (1989) Purification and yield of a cationic peroxidase from peanut suspension cell culture. *Plant Sci*. 61: 163-168.
- Shalabi SI & Fox PF (1987) Electrophoretic analysis of cheese: comparison of methods. *Ir. J. Food Sci. Technol*. 11: 135-151.
- Shinano, S & Fukushima K (1971) Studies on lotus protease. III. Some physicochemical and enzymatic properties. *Agric. Biol. Chem*. 35: 1488-1494.
- Sicard P (1982) Applications industrielles des enzymes. In: *Les enzymes. Productions et Utilisations Industrielles*, eds. G Durand & P Monsan, pp: 121-164. Gauthier-Villars. Paris. France.
- Smeets R (1995) Enzyme-coagulation. *Dairy Technol. Paper* 5: 14-17.
- Sousa MJ & Malcata X (1997) Comparative biochemical evolution during ripening of bovine, ovine and caprine cheeses manufactured with extracts of flowers of *Cynara cardunculus*. *Z. Lebensm. Unters. Forsch. A*. 205: 97-103.
- Spencer M, Ashton S & Scollick S (1993) Characterization of novel peroxidases from plant cell cultures: evidence of widely different substrate specificities. In: *Plant Peroxidases Biochemistry and Physiology* (K Welinder, S Rasmussen, C Penel & H Greppin, eds.), pp.: 435-440. University of Copenhagen and University of Geneva.
- Sponsel VM (1995) The biosynthesis and metabolism of gibberellins in higher plants. In: *Plant Hormones: Physiology, Biochemistry and Molecular Biology* (PJ Davies, ed.), pp.: 66-97. Kluwer Acad. Pub. The Netherlands.
- St Angelo AJ & Ory RL (1970) Properties of a purified proteinase from hempseed. *Phytochemistry* 9: 1933-1938.
- St Angelo AJ, Ory RL & Hansen HJ (1969) Localization of an acid proteinase in hempseed. *Phytochemistry* 8: 1135-1138.
- Stachowiak D, Wilimowska-Pelc A, Kolaczowska M, Polanowski A, Wilusz T & Larsen LB (1994) Aspartic proteinase from the seeds of figleaf gourd (*Cucurbita ficifolia*). *Acta Biochim. Pol*. 41: 181-182.
- Stirn S & Jacobsen HJ (1987) Marker proteins for embryogenic differentiation patterns in pea callus. *Plant Cell Rep*. 6: 50-54.
- Storey RD & Wagner FW (1986) Plant proteases: a need for uniformity. *Phytochemistry* 25: 2701-2709.
- Swanson SJ & Jones RL (1996) Gibberellic acid induces vacuolar acidification in barley aleurone. *Plant Cell* 8: 2211-2221.
- Swanson SJ, Bethke PC, Jones RL (1998) Barley aleurone cells contain two types of vacuoles: characterization of lytic organelles by use of fluorescent probes. *Plant Cell* 10: 685-698.

- Szabados L, Mroginski L & Roca WM (1991) Suspensiones celulares: descripción, manipulación y aplicaciones. En: *Cultivos de Tejidos en la Agricultura: Fundamentos y Aplicaciones* (WM Roca & LA Mroginski, eds.), pp.: 173-210. CIAT. Cali. Colombia.
- Takahashi K, Chang W.-J and Ko J.-S (1974) Specific inhibition of acid proteases from bran, kidney, skeletal muscle, and insectivorous plants by diazoacetyl-DL-norleucine methyl ester and by pepstatin. *J. Biochem.* 76: 897-904.
- Tamer IM & Mavituna F (1996) Protease from callus and cell suspension cultures of *Onopordum turcicum*. *Biotechnol. Lett.* 18: 361-366.
- Tamer IM (1993) Identification and parcial purification of a novel milk enzyme from *Onopordum turcicum*. *Biotechnol. Lett.* 15: 427-432.
- Tang J & Wong RNS (1987) Evolution in the structure and function of aspartic proteinases. *J. Cell Biochem.* 33: 53-63.
- Tavaria FK, Sousa MJ, Domingos A, Malcata FX, Brodelius P, Clemente A & Pais MS (1997) Degradation of casein from milk of different species by extracts of *Centaurea calcitrapa*. *J. Agric. Chem.* 45: 3760-3765.
- Tökes ZA, Woon WC & Chambers SM (1974) Digestive enzymes secreted by the carnivorous plant *Nepenthes macfarlanei* L. *Planta (Berlin)* 119: 39-46.
- Toponi M (1960) Recherches sur le développement de fragments de bractées d'artichaut. *C.R. Acad. Sci.* 250: 2439-2441.
- Törmäkangas K, Kervinen J, Östman A & Teeri T (1994) Tissue-specific localization of aspartic proteinase in developing and germinating barley grains. *Planta* 195: 116-125.
- Trevisan MTS, Scheffer JJC & Verpoorte R (1997) Effect of elicitation on the peroxidase activity in some cell suspension cultures of hop, *Humulus lupulus*. *Plant Cell Tiss. Org. Cult.* 48: 121-126.
- Uhlig H (1998) Enzymes in the meat industry. In: *Industrial Enzymes and their Applications* (Uhlig H, ed.), pp.: 337-339. John Willey & Sons. USA.
- Vaccaro AM, Tatti M, Ciaffoni F, Salvioli R, Maras B & Barca A (1993) Function of saposin C in the reconstitution of glucosylceramidase by phosphatidylserine liposomes. *FEBS Lett.* 336: 159-161
- Vallon U & Kull U (1994) Localization of proteasomes in plant cells. *Protoplasma* 182: 15-18.
- Valpuesta V, Quesada M & Reid M (1993) Senescencia y abscisión. In: *Fisiología y Bioquímica Vegetal*. (J Azcón-Bieto & M Talon, eds.), Cap. 24. pp.: 479-492. Interamericana. Mc Graw Hill. España.
- Verissimo P, Esteves C, Faro C & Pires E (1995) The vegetable rennet of *Cynara cardunculus* L. contains two proteinases with chymosin and pepsin-like specificities. *Biotechnol. Lett.* 17: 621-626.

- Veríssimo P, Faro C, Moir A, Lin Y, Tang J & Pires E (1996) Purification, characterization and partial amino acid sequencing of two new aspartic proteinases from fresh flowers of *Cynara cardunculus* L. *Eur. J. Biochem.* 235: 762-768.
- Veríssimo P, Ramalho-Santos M, Faro C & Pires E (1998) A comparative study on the aspartic proteinases from different species of *Cynara*. In: *Aspartic Proteinases* (NMG James, ed.), pp.: 459-463. Plenum Press. New York. USA.
- Verpoorte R, van der Heijden R, ten Hoopen HJG & Memelink J (1998) Metabolic engineering for the improvement of plant secondary metabolite production. *Plant Tiss. Cult. Biotechnol.* 4: 3-20.
- Vidalie H (1986) *Cultivo in vitro*. Editorial Científica, S.A. de C.V. México.
- Voet D & Voet J (1992) *Bioquímica*. Capítulo 5: *Técnicas de purificación de las proteínas*. pp.: 79-113. Ediciones Omega. Barcelona. España.
- Voigt G, Biehl B, Heinrichs H & Voigt J (1997) Aspartic proteinase levels in seeds of different angiosperms. *Phytochemistry* 44: 389-392.
- Voigt J, Biehl B, Heinrichs H, Kamaruddin S, Gaim Marsoner G & Hugi A (1994) In-vitro formation of cocoa-specific aroma precursors: aroma-related peptides generated from cocoa-seed protein by co-operation of an aspartic endoprotease and a carboxipeptidase. *Food Chem.* 49: 173-180.
- Walreavens V, Jaziri M, van Beeumen J, Schnek AG, Kleinschmidt T & Looze Y (1993) Isolation and preliminary characterization of the cysteine-proteinases from the latex of *Carica candamarcensis* Hook. *Biol. Chem. Hoppe-Seyler* 374: 501-506.
- Warren G (1992) The cell biology of plant cell culture systems. In: *Plant Biotechnology: Comprehensive Biotechnology*. Second Supplement (M Fowler, G Warren & M Moo-Young, eds.), pp.: 1-32. Pergamon Press. England.
- Wegener T & Fintelmann V (1999) Pharmacological properties and therapeutic profile of artichoke (*Cynara scolymus* L.). *Wien. Med. Wochenschr.* 149: 241-247.
- Westergaard JL, Hackbarth C, Treuhaff MW & Roberts RC (1980) Detection of proteinases in electrophoretograms of complex mixtures. *J. Immunol Meth.* 34: 167-175.
- White PC, Cordeiro MC, Arnold D, Brodelius PE & Kay J (1999) Processing, activity and, inhibition of recombinant cyprosin, an aspartic proteinase from cardoon (*Cynara cardunculus*). *J. Biol. Chem.* 274: 16685-16693.
- White PR (1963) *The Cultivation of Animal and Plant Cells*. Ronald Press. New York. USA.
- Wiklund A (1992) The genus *Cynara* L. (Asteraceae-Cardueae). *Bot. J. Linn. Soc.* 109: 75-123.
- Williams PD & Mavituna F (1992) Immobilized plant cells. In: *Plant Biotechnology: Comprehensive Biotechnology*. Second Supplement (M Fowler, G Warren & M Moo-Young, eds.), pp.: 63-78. Pergamon Press. England.

- Yamada Y, Kobayashi S, Watanabe K & Hayashi U (1987) Production of horseradish peroxidase by plant cell culture. *J. Chem. Technol. Biotechnol.* 38: 31-39.
- Yamaguchi T, Yamashita Y, Takeda Y & Kiso H (1982) Proteolytic enzymes in green asparagus, kiwi fruit and miut: occurrence and partial characterization. *Agric. Biol. Chem.* 46: 1983-1986.
- Yanagawa Y, Ohhashi A, Murakami Y, Saeki Y, Yokosawa H, Tanaka K, Hashimoto J, Sato T & Nakagawa H (1999) Purification and characterization of the 26S proteasome from cultured rice (*Oryza sativa*) cells. *Plant Sci.* 149: 33-41.
- Ye X, Al-Babili S, Klöti A, Zhang J, Lucca P, Beyer P & Potrykus I (2000) Engineering the provitamin A (β -carotene) biosynthetic pathway into (carotenoid-free) rice endosperm. *Science* 287: 303-305.
- Yeoman M, Holden M, Corchet P, Holden P, Goy J & Hobbs M (1990) Exploitation of disorganized plant cultures for the production of secondary metabolites. In: *Second Products from Plant Tissue Culture* (B Charlwood & M Rhodes, eds.), pp.: 139-166. Clarendon Press. Oxford. UK.
- Yokoyama M & Yanagi M (1991) High level production of arbutin by transformation. In: *Plant Cell Culture in Japan* (A Komamine, M Misawa & F DiCosmo, eds.), pp.: 79-91. CMC Co. Ltd. Tokyo. Japan.
- Zenk MH, El-Shagi H, Arens H, Stöckigt J, Weiler EW & Deus B (1977) Formation of indole alkaloids serpentine and ajmalicine in cell suspension cultures of *Catharanthus roseus*. In: *Plant Tissue Culture and its Biotechnological Applications* (W Barz, E Reinhard & MH Zenk, eds.) pp.: 27-43. Springer-Verlag. Berlin. Germany.
- Zhang N & Jones BL (1995) Characterization of germinated barley endoproteolytic enzymes by two-dimensional gel electrophoresis. *J. Cereal Sci.* 21: 145-153.
- Zhu Y & Conner GE (1994) Intermolecular association of lysosomal protein precursors during biosynthesis. *J. Biol. Chem.* 269: 3846-3851.