



Reference

- Aebi H (1984) Catalase *in vitro*, Methods of Enzymology, 105:121-126.
- Akasaka Y, Daimon H, Mii M (2000): Improved plant regeneration from cultured leaf segments in peanut (*Arachis hypogaea L.*) by limited exposure to thidiazuron. *Plant Sci.*, 156(2): 169–175.
- Albert A, Martinez-Ripoll M, Espinosa-Ruiz A, Yenush L, Culianez-Macia FA, Serrano R (2000) The X-ray structure of the FMN-binding protein AtHal3 provides the structural basis for the activity of a regulatory subunit involved in signal transduction. *Struct. Fold Design* 8: 961 – 969.
- Allard F, Houde M, Kro" I M, Ivanov A, Huner NPA, Sarhan F (1998) Betaine improves freezing tolerance in wheat. *Plant Cell Physiol* 39: 1194–1202.
- Alia, Kondo Y, Sakamoto A, Nonaka H, Hayashi H, Saradhi PP, Chen THH, Murata N (1999) Enhanced tolerance to light stress of transgenic *Arabidopsis* plants that express the *codA* gene for a bacterial choline oxidase. *Plant Mol Biol* 40: 279–288.
- Alscher RG, Erturk N & Heath LS (2002) Role of superoxide dismutases (SODs) in controlling oxidative stress in plants. *J. Exp. Bot.* 53: 1331–1341.
- Amor NB, Hamed KB, Debez A, Grignon C, Abdelly C (2005) Physiological and antioxidant responses of the perennial halophyte *Critchmum maritimum* to salinity. *Plant Sci.* 168:889-899.

- Apse MP, Aharon GS, Snedden WA, Blumwald E (1999) Salt tolerance conferred by overexpression of a vacuolar Na⁺/H⁺ antiport in *Arabidopsis* *Science* 285:1256-1258.
- Arakawa K, Katayama M, Takabe T (1990). Levels of betaine and betaine aldehyde dehydrogenase activity in the green leaves, and etiolated leaves and roots of barley. *Plant Cell Physiol*, 31: 797-803.
- Asada K (1992) Ascorbate peroxidase-a hydrogen-scavenging enzyme in plants. *Physiol Plant*. 85:235-241.
- Asada K (1999) The water-water cycle in chloroplasts: scavenging of active oxygens and dissipation of excess photons. *Annu Rev Plant Physiol Plant Mol Biol* 50: 601–639
- Asada K (2000) The water-water cycle as alternative photon and electron sinks, *Philos. Trans. R. Soc. Lond. B*, 355, 1419-1431.
- Ashraf M (1999) Breeding for salinity tolerance proteins in plants. *Crit.Rev. Plant Sci.* 13: 17 – 42.
- Azevedo-Neto AD, Prisco JT, Enéas-Filho J, Abreu CEB, Gomes-Filho E (2006) Effect of salt stress on antioxidative enzymes and lipid peroxidation in leaves and roots of salt-tolerant and salt-sensitive maize genotypes. *Environ. Exp. Bot.* 56:87-94.
- Bajaj S, Targoli J, Liu L-F, Ho TH, Wu R (1999) Transgenic approaches to increase dehydration-stress in plants. *Mol. Breed.* 5: 493 – 503
- Bean SJ, Gooding PS, Mullineaux PM, Davies DR (1997) A simple system for pea transformation. *Plant Cell Rep* 16:513–519

- Bernaerts M, Ley J. (1963), A biochemical test for crown-gall bacteria, *Nature* 197: 4.
- Binzel ML, Hasegawa PM, Rhodes D, Handa S, Handa AK, Bressan RA (1987) Solute Accumulation in Tobacco Cells Adapted to NaCl Plant Physiol. 84(4): 1408–1415.
- Bordas M, Montesinos C, Dabauza M, Salvador A, Roig LA, Serrano R, MorenoV (1997) Transfer of the yeast salt tolerance gene HAL1 to *Cucumis melo* L. cultivars and *in vitro* evaluation of salt tolerance. *Trans. Res.* 6: 41 – 50.
- Bray EA (1993) Molecular responses to water deficit. *Plant Physiol.* 103: 1035 – 1040
- Bohnert H, Nelson D & Jensen R (1995) Adaptations to environmental stresses. *Plant Cell* 7: 1099 – 1111
- Bohnert HJ, Jensen RG (1996) Strategies for engineering water stress tolerance in plants. *TIBTECH* 14:89-97.
- Bohnert H, Ayoubi P, Borchert C, Bressan R, Burnap R, Cushman JC, Cushman MA, Deyholos M, Fisher R, Galbraith D, Hasegawa P, Jenks M, Kawasaki S, Koiwa H, Kore-eda S, Lee B-H, Michalowski C, Misawa E, Nomura M, Ozturk N, Postier B, Prad RCPS, Tanaka Y, Wang H, J-K Z (2001) A genomics approach towards salt stress tolerance. *Plant Physiol. Biochem.* 39: 295 – 311.
- Borsani O, Cuartero J, Fernandez JA, Valpuesta V, Botella MA (2001a) Identification of two loci in tomato reveals distinct mechanisms for salt tolerance. *Plant Cell* 13: 873 – 888.
- Borsani O, Valpuesta V, Botella MA (2001b) Evidence for a role of

- salicylic acid in the oxidative damage generated by NaCl and osmotic stress in *Arabidopsis* seedlings. *Plant Physiol.* 126: 1024- 1030.
- Botella MA, Quesada MA, Kononowicz AK, Bressan RA, Pliego F, Hasegawa PM, Valpuesta V (1994) Characterization and in situ localization of a salt-induced tomato peroxidase mRNA. *Plant Mol. Biol.* 25: 105 – 140.
 - Boyer JS (1982)*Plant Productivity and Environment*,: Vol. 218 no. 4571 pp. 443-448.
 - Bressan RA, Zhang C, Zhang H, Hasegawa PM, Bohnert HJ, Zhu J-K (2001) Learning from the *Arabidopsis* experience. The next gene search paradigm. *Plant Physiol.* 127: 1354 – 1360.
 - Brouquisse R, Weigel P, Rhodes D, Yocom CF, Hanson AD. (1989). Evidence for a ferredoxin-dependent choline monooxygenase from spinach chloroplast stroma. *Plant Physiol.* 90:322-329.
 - Carmina Gisbert, Ana M. Rus, M. Carmen Bolarín, J. Miguel López-Coronado, Isabel Arrillaga,² Consuelo Montesinos, Manuel Caro, Ramon Serrano, Vicente Moreno : (2000) *Plant Physiol.*123(1): 393–402.
 - Cassells AC, Curry RF (2001) Oxidative stress and physiological, epigenetic and genetic variability in plant tissue culture: implications for micropropagators and genetic engineers. *Plant Cell Tissue Organ. Cult.* 64: 145-167.
 - Chabaud M, Passiatore JE, Cannon F, Buchanan-Wollaston V (1988)Parameters affecting the frequency of kanamycin resistant

alfalfa obtained by Agrobacterium tumefaciens mediated transformation Plant Cell Rep. 7:512-516.

- Chen, Z and Shabala, SN and Mendham, NJ and Newman, IA and Zhang, G and Zhou, M, Combining Ability of Salinity Tolerance on the Basis of NaCl-Induced K⁺ Flux from Roots of Barley, Crop Science, 48, (4) pp. 1382-1388.
- Cheng, M., His, DCH, Phillips, GC (1992) In vitro regeneration of valencia-type peanut (*Arachis hypogaea* L.) from cultured petiolules, epicotyl sections and other seedling explants. Peanut Sci. 19, 82-87.
- Cheng M., Jarret RL., Li Z. and Demski J W. (1996) Expression and inheritance of foreign genes in transgenic peanut plants generated by Agrobacterium-mediated transformation, 16: 541-544.
- Chengalrayan K, Mhaske VB, Hazra S(1995)In vitro regulation of morphogenesis in peanut (*Arachis hypogaea* L.). *Plant Sci.* 110(2): 259-268.
- Chengalrayan K, Hazra S, Gallo Meagher M (2001) Histological analysis of somatic embryogenesis and organogenesis induced from mature zygotic embryo derived leaflets of peanut (*Arachis hypogaea* L.). *Plant Sci.*, 161: 415-421
- Chilton MD, Montoya AL, Merlo DJ, Drummond MH, Nutter R, Gordon MP, Nester EW (1978). Restriction endonuclease mapping of a plasmid that confers oncogenicity upon Agrobacterium tumefaciens strain B6-806. *Plasmid*. 1978 Feb;1(2):254-269.

- Chinnusamy V, Jagendorf A, Zhu JK (2005):Understanding and improving salt tolerance in plants. *Crop Sci* 45: 437–448.
- Chinnusamy V, Zhu J, Jian-Kang Zhu(2006): Genetic Engineering, Volume 27, 141-177.
- Christine H. Foyer and Graham Noctor (2003): Redox sensing and signalling associated with reactive oxygen in chloroplasts, peroxisomes and mitochondria: *Physiol. Planta.*119: 355–364.
- Cooke, R., Warren, A., and Goudie., A. (1993). Weathering Forms and Processes. *Desert Geomorphology*. London: UCL Press pp38
- Cuartero J, Fernandez-Munoz R (1999) Tomato and salinity. *Sci. Hort.* 78: 83 – 125.
- Cuin TA , Shabala S. Potassium transport and plant salt tolerance (2008) *Physiologia Plantarum*, 133:651-669.
- DeKathen A and Jacobsen HJ (1990) *Agrobacterium tumefaciens*-mediated transformation of *Pisum sativum* L. using binary and cointegrate vectors. *Plant Cell Report* 9: 276-279.
- de la Riva A., Ayra-Pardo C. and Gonzalez-Carbera J. (1998), *Agrobacterium tumefaciens*: a natural tool for plant transformation, *Electron. J. Biotechnol.*1: 118-133.
- DeFramond A., Barton K. and Chilton M. (1983), Mini-Ti; A new vector strategy for plant genetic engineering, *Bio/Technology* 1: 262–272.
- Deshnium P, Los DA, Hayashi H, Mustardy L, Murata N (1995) Transformation of *Synechococcus* with a gene for choline oxidase enhances tolerance to salt stress. *Plant Mol Biol* 29: 897–907.

- Dodds JH, Roberts LW (1985). Experiments in plant tissue culture (second edition). Cambridge University Press. pp. 21-35.
- Driessche Th, Guisset JL, Petiau-de Vries GM (eds), The Redox State and Circadian Rhythms. Kluwer Academic Publishers, Dordrecht, pp. 235-255.
- Franck T, Kevers C, Hausman JF, Dommes J, Penel C, Greppin H (2000) Redox capacities of in vitro cultured plant tissues: the case of hyperhydricity. *Plant Cell, Tissue and Organ culture*. 77:181-191.
- Eapen S, George L (1994) *Agrobacterium tumefaciens*-mediated gene transfer in peanut (*Arachis hypogaea* L.). *Plant Cell Rep.* 13: 582–586.
- Elstner EF (1991) Mechanisms of oxygen activation in different compartments of plant cells. In Pell EJ, Steffen KL, eds, Active Oxygen Species, Oxidative Stress, and Plant Metabolism. American Society of Plant Physiologists, Rockville, MD, pp 13–25.
- Evelin H, Kapoor R, Giri B (2009). Arbuscular mycorrhizal fungi in alleviation of salt stress. *J. Ann. Bot.*, 104(7): 1263-1280.
- Flowers TJ, Koyama ML, Flowers SA, Chinta Sudhakar KP, Shing KP, Yeo AR (2000) QTL: their place in enginnering tolerance of rice to salinity. *J. Exp. Bot.* 51: 99 – 106.
- Foolad MR, Lin GY (1997) Genetic potential for salt tolerance during germination in *Lycopersicon* species. *HortScience* 32: 296- 300.
- Foyer CH, Parry M, Noctor G (2003) Markers and signals associated with nitrogen assimilation in higher plants. *J Exp Bot* 54: 585-593.

- Foyer CH, Noctor G (2005) Redox homeostasis and antioxidant signalling: a metabolic link between stress perception and physiological responses. *Plant Cell* 17:1866-1875.
- Fridovich I (1989) Superoxide dismutases: An adaptation to a paramagnetic gas, *The Journal of Biological Chemistry*, 264: 7761-7764.
- Gaspar T, Franck T, Bisbis B, Kevers C, Jouve L, Hausman JF, Dommes J (2002) Concepts in plant stress physiology. Application to plant tissue cultures *Plant Growth Regulation*. 37: 263-285,
- Garcia GM., Tallury SP., Stalker HT(2006) Molecular analysis of Arachis inter-specific hybrids. *Theor. Appl. Genet.* 112, 1342-1348.
- Gamborg OL, Miller RA, Ojima K(1968) Nutrient requirements of suspension cultures of soybean root cells. *Exp. Cell. Res.* 50(1): 151–158.
- Gaspar T, Franck T, Bisbis B, Kevers C, Jouve L, Hausman JF, and Dommes, J. 2002. Concepts in plant stress physiology. Application to plant tissue cultures. *Plant Growth Regulation* 37: 263-285.
- Gratao PL, Polle A, Lea PJ, Azevedo RA (2005). Making the life of heavy metal-stressed plants a little easier. *Funct. Plant Biol.*, 32: 481-494.
- Geetha N, Venkatachalam P, Rao GR (1997) Factors influencing production of Agrobacterium mediated genetically transformed calli and plant regeneration in blackgram (*Vigna mungo* L. Hepper). *Plant Tiss. Cult*, 7:149 152.

- Geetha N, Venkatachalam P, LakshmiSita G (1999) Agrobacterium-mediated genetic transformation of Pigeonpea (*Cajanus cajan* L.) and development of transgenic plants via Direct Organogenesis; *Plant Biotechnol.* 16: 213-218.
- Gelvin S. (2000), Agrobacterium and plant genes involved in T-DNA transfer and integration, *Annu. Rev. Plant Physiol. Plant Mol. Biol.* 51: 223-256.
- Gelvin S. (2003), Agrobacterium-mediated plant transformation: the Biology behind the “Gene-Jockeying” Tool, *Microbiol. Mol. Biol. Rev.* 67: 16-37.
- Gelvin, S.B. 2005. Gene exchange by design (News and Views). *Nature* 433: 583-584.
- Gisbert C, Rus AM, Bolarin MC, Lopez-Coronado JM, Arrillaga I, Montesinos C, Caro M, Serrano R, Moreno V (2000) The yeast HAL1 gene improves salt tolerance of transgenic tomato. *Plant. Physiol.* 123: 393 – 402.
- Glick B. (2003), Molecular Biotechnology: Principles and Applications of Recombinant NA Technology, American Society of Microbiology Press, Washington D.C., 3rd edition.
- Godjim OJM , Verwoerd TC, Voogd E, Krutwagen RWHH, diGraaf PTHM, Poels J, van Dun K, Ponstein AS, Damm B, Pen J (1997) Inhibition of Trehalose activity Enhance Trehalose Accumulation in Transgenic plants. *Plant Physiol.* 113:181-190.
- Gorham J (1995) Betaines in higher plants: biosynthesis and role in stress metabolism. *In* RM Wallsgrove, ed, Amino Acids and Their

- Derivatives in Higher Plants. Cambridge University Press, Cambridge, UK, pp 171–203.
- Gratão PL, Polle A, Lea PJ, Azevedo RA (2005). Making the life of heavy metal-stress plants a little easier. *Functional Plant Biology* 32: 481–494.
 - Halward T., Stalker HT, Kochert G (1993). Development of an RFLP linkage map in diploid peanut species. *Theor. Appl. Genet.* 87, 379-384.
 - Hanson A & Hitz W (1982) Metabolics responses of mesophytes to plant water deficits. *Ann. Rev. Plant Physiol.* 33: 163 – 203.
 - Hasagava PM, Bressan RA, Nelsen DE, Samaras Y, Rhodes D (1994) tissue culture in the improvement of salt tolerance in plants. In *Soil mineral Stresses. Approaches to Crop Improvement Monogr Theoret. Appl. Genet.*, vol. 21, ed. AR Yeo, TJ Flowers, pp. 83-125. Berlin Springer-Verlag.
 - Hasegawa M, Bressan R & Pardo JM (2000a) The dawn of plant salt tolerance genetics. *Trends Plant Sci.* 5: 317 – 319.
 - Hasegawa M, Bressan R, Zhu J-K, Bhonert H (2000b) Plant cellular and molecular responses to high salinity. *Ann. Rev. Plant Physiol.* 51: 493 – 499.
 - Hare PD, Cress WA , Van Staden J (1998) Dissecting the roles of osmolyte accumulation during stress. *Plant Cell Environ.* 21: 535-554.
 - Hayashi H, Murata N (1998) Genetically engineered enhancement of salt tolerance in higher plants. *In K Satoh, N Murata, eds, Stress*

- Responses of Photosynthetic Organisms. Elsevier Press, Amsterdam, pp 133–148.
- Hayashi H, Alia, Mustardy L, Deshnium P, Ida M, Murata N (1997) Transformation of *Arabidopsis thaliana* with the *codA* gene for choline oxidase; accumulation of glycinebetaine and enhanced tolerance to salt and cold stress. *Plant J* 12: 133–142.
 - Hayashi H, Alia, Sakamoto A, Nonaka H, Chen THH, Murata N (1998) Enhanced germination under high-salt conditions of seeds of transgenic *Arabidopsis* with a bacterial gene (*codA*) for choline oxidase. *J Plant Res* 111: 357–362.
 - He T, Cramer GR (1993) Cellular responses of two rapid cycling *Brassica* species, *napus* and *B. carinata* to seawater salinity, *Physiol. Plant.* 87:54-60.
 - Hernández JA, Olmos E, Corpas FJ, Sevilla F, Del Río LA (1995) Salt-induced oxidative stress in chloroplasts of pea plants. *Plant Sci.* 105:151-167.
 - Hiraga S, Sasaki K, Ito H, Ohashi Y, Matsui H(2001).A Large Family of Class III Plant Peroxidases. *Plant Cell Physiol*, 42 (5):462-468.

 - Hoekema A., Hirsch P. and Hooykass P. (1983), A binary plant vector strategy based on separation of the vir and T-DNA regions of the *Agrobacterium tumefaciens* Ti plasmid, *Nature* 303: 179-180.
 - Holm P., Olsen O., Scnorf M. et al. (2000), Transformation of barley by micro-injection into isolated zygote protoplasts, *Transgenic Res.* 9: 21-32.

- Holmstrom KO, Mantyla E, Welin B, Mandal A, Palva TE, Tunnella OE, Londesborough J (1996) Drought tolerance in tobacco. *Nature* 379: 683–684.
- Holmstrom K-O, Somersalo S, Mandal A, Palva ET, Welin B (2000) Improved tolerance to salinity and low temperature in transgenic tobacco producing glycine betaine. *J Exp Bot* 51: 177–185.
- Hong B, Barg R, Ho TH (1992) Developmental and organspecific expression of an ABA- and stress-induced protein in barley. *Plant Mol. Biol.* 18: 663 – 674.
- Hong Z, Lakkineni K, Zhang Z, Verma D P S (2000) Removal of feedback inhibition of delta1-pyrroline-5-carboxylate synthetase results in increased proline accumulation and protection of plants from osmotic stress. *Plant Physiol.* 122: 1129–1136.
- Huang J, Hirji R, Adam L, Rozwadowski KL, Hammerlindl JK, Keller WA, Selvaraj G (2000) Genetic engineering of glycinebetaine production toward enhancing stress tolerance in plants: metabolic limitations. *Plant Physiol* 122: 747–756.
- Huh GH, Damsz B, Matsumoto TK, Reddy MP, Rus AM, Ibeas JI, Narasimhan ML, Bressan RA, Hasegawa PM (2002). Salt causes ion disequilibrium-induced programmed cell death in yeast and plants. *The Plant Journal*. 29:649-659.
- Ikuta, S., Imamura, S., Misaki, H. and Horiuchi, Y. (1977) Purification and characterization of choline oxidase from *Arthrobacter globiformis*. *J. Biochem.* 82, 1741-1749.

- Ishitani M, Arakawa K, Mizuno K, Kishitani S, Takabe T (1993). Betaine and betaine aldehyde dehydrogenase in the Gramineae: levels in leaves of both betaine accumulating and nonaccumulating cereal plants. *Plant Cell Physiol*, 34: 493–495.
- Jadhav GG, Salunkhe DS, Nerkar DP, Bhadekar RK (2010). Isolation and characterization of salt-tolerant nitrogen-fixing microorganisms from food. *J. Eur. Asia. Bio. Sci.*, 4: 33–40.
- Jain RK, Selvaraj G (1997) Molecular genetic improvement of salt tolerance in plants. *Biotechnol Annu Rev* 3: 245–267.
- Jaiwal P K, Kumari R, Ignacimuthu S, Potrykus I, Sautter C (2001) Agrobacterium tumefaciens-mediated genetic transformation of mungbean (*Vigna radiata* L.Wilczek): a recalcitrant grain legume; *Plant Sci.* 161 239-247.
- Jiang M, Zhang J (2003) Cross-talk between calcium and reactive oxygen species originated from NADPH oxidase in abscisic acid-induced antioxidant defence in leaves of maize seedlings. *Plant Cell Environ* 26:929–939
- Jefferson RA, Kavanagh TA, Bevan MW (1987) GUS fusion: β-glucuronidase as a sensitive and versatile gene fusion marker in higher plants; *EMBO J.* 6 3901–3907.
- Johnson D, Smith S, Dobrenz A (1992) Genetic and phenotypic relationships in response to NaCl at different developmental stages in alfalfa. *Theor. Appl. Gen.* 83: 833 - 838

- Kar S, Johnson TM, Nayak P, Sen SK (1996) Efficient transgenic plant regeneration through *Agrobacterium* mediated transformation of chickpea (*Cicer arietinum* L.). *Plant Cell Rep.* 16: 32-37.
- Karahara I, Matsuda K, Honma Y(2008) Effects of ethylene on the production, elongation, and differentiation of endodermal cells in maize primary root: An integrative analysis of the developmental process of a particular cell type. *Plant Root* 2: 29-37.
- Karakas B, Ozias-Akins P, Stushnoff C, Suefferheld M, Rieger M (1997) Salinity and drought tolerance of mannitol-accumulating transgenic tobacco. *Plant Cell Environ.* 20: 609 – 616.
- Kevin LR, George GK, Gopalan S. (1991) Choline oxidase, a catabolic enzyme in *Arthrobacter pascens*, facilitates adaptation to osmotic stress in *E.coli*. *Journal of Bacteriology*, p. 472-478.
- Kishitani S, Watanabe K, Yasuda S, Arakawa K, Takabe T (1994) Accumulation of glycinebetaine during cold acclimation and freezing tolerance in leaves of winter and spring barley plants. *Plant Cell Environ* 17:89–95.
- Kishor PBK, Hong Z, Miao GH, Hu CAA, Verma DPS (1995). Overexpression of delta1-pyrroline-5-carboxylate synthetase increases proline production and confers osmotolerance in transgenic plants. *Plant Physiol.* 108: 1387–1394.
- Khan MA, Ungar IA, Showalter AM(1999) Effects of salinity on growth, ion content and osmotic relations in *Halopyrum mucronatum* (L.) Stapf. *J. Plant Nutr.*, 22: 191-204.

- Klein T., Wolf E., Wu R. et al. (1987), High-velocity micro-projectiles for delivering nucleic acids into living cells, *Nature* 327: 70-73.
- Knight H, Trewavas AJ, Knight MR (1997) Calcium signalling in *Arabidopsis thaliana* responding to drought and salinity. *Plant Journal* 12: 1067-1078.
- Koornneef M, Leon-Kloosterziel KM, Schwartz SH, Zeevart JAD (1998) The genetic and molecular dissection of bscsic acid biosynthesis and signal transduction in *Arabidopsis*. *Plant Physiol. Biochem.* 36: 83 – 89.
- Kurban HH, Saneoka K, Nehira R, Adilla GS, Premachandra, Fujita K (1999) Effect of salinity on growth, photosynthesis and mineral composition in a leguminous plant *Alhagi pseudoalhagi* (Bieb.). *Soil Sci. Plant Nutr.*, 45: 851-862
- Lacorte C, Mansur E, Timmerman B, Cordeiro AR (1991), Gene transfer into peanut (*Arachis hypogaea* L.) by *Agrobacterium tumefaciens*, *Plant Cell Rep.* 10: 354 - 357.
- Landfald B, Strøm AR (1986) Choline-glycine betaine pathway confers a high level of osmotic tolerance in *Escherichia coli*. *J. Bacteriol.* 165: 849-855.
- Larebeke V, Engler N, Holsters G, Van den Elsacker M, Zaenen S, Schilperoort I, Schell RA, Van Larebeke J, (1974) Large plasmid in *Agrobacterium tumefaciens* essential for crown gall-inducing ability *Nature* 252, 169–170.
- Lauchli A & Epstein E (1990) Plant responses to saline and sodic

- conditions. In: Tanji, KK (eds) Agricultural salinity assessment and management 113 - 137. Amer. Soc. Civil Eng., New York
- Le Rudulier D, Strøm AR, Dandekar AM, Smith LT, Valentine RC (1984) Molecular biology of osmoregulation. *Science* 224: 1064–1068.
 - Lee L. and Gelvin S. (2008), T-DNA binary vectors and systems, *Plant Physiol.* 146: 3.
 - Leung J, Giraudat J.(1998) Abscisic acid signal transduction. *Annu Rev Plant Physiol Plant Mol Biol.* 49:199-222.
 - Li Z., Jarret, RL Demski JW (1997) Engineered resistance to tomato spotted wilt virus in transgenic peanut expressing the viral nucleocapsid gene. *Transgenic Res.* 6: 297-305.
 - Lilius G, Holmberg N, Bulow L (1996) Enhanced NaCl stress tolerance in transgenic tobacco expressing bacterial choline dehydrogenase. *Biotechnology*, 14:177–180.
 - Lin J, Wang Y, Wang G. (2006). Salt stress-induced programmed cell death in tobacco protoplasts is mediated by reactive oxygen species and mitochondrial permeability transition pore status. *Journal of Plant Physiology* 163: 731–739.
 - Livingstone DM, Hampton JL, Phipps PM, Grabau EA (2005). Enhancing resistance to Sclerotinia minor in peanut by expressing a barley oxalate oxidase gene. *Plant Physiol.* 137:1354-1362.
 - Lopez ML, Satti SME (1996) Calcium and potassium enhanced growth and yield of tomato under sodium chloride stress. *Plant Sci.*, 114: 19-27.25-332..

- Lulsdorf MM, Rempel H, Jackson JA, Baliski DS, Hobbs SLA (1991). Optimizing the production of transformed pea (*Pisum sativum L.*) callus using disarmed *Agrobacterium tumefaciens* strains. *Plant Cell Rep*, 9: 479-483.
- Lynch TJ, Polito L & Lauchli A (1989) Salinity stress increases cytoplasmic Ca activity in maize root protoplast. *Plant Physiol*. 90: 1271–1274.
- Maathuis Frans JM, Anna Amtamann (1999), K⁺ Nutrition and Na⁺ Toxicity: The Basis of Cellular K⁺/Na⁺ Ratios: *Annals of Botany* 84: 123-133.
- Magbanua ZV, Wilde HD, Roberts JK, Chowdhury K, Abad J, Moyer JW, Wetzstein HY, Parrott WA, (2000) Field resistance to tomato spotted wilt virus in transgenic peanut (*Arachis hypogaea L.*) expressing an antisense nucleo-capsid gene sequence. *Mol. Breeding* 6: 227-236.
- Maina SM, Quinata E, Sharma KK, Simon T, Gichuki MG, and de Villiers SM (2010) Surface sterilant effect on the regeneration efficiency from cotyledon explants of groundnut (*Arachis hypogaea L.*) varieties adapted to eastern and Southern Africa. *African Journal of Biotechnology*. 9(20): 2866-2871.
- Mathur N, Singh J, Bohra S, Vyas A (2007). Arbuscular mycorrhizal status of medicinal halophytes in saline areas of Indian Thar Desert. *J. Soil. Sci.*, 2: 119–127.

- Matcho T, Watanabe J, Takahashi E(1987) Sodium, Potassium chloride and betaine concentration on isolated vacuoles from salt-grown *Atriplex gmelini* leaves. *Plant Physiology*, 84:173-177.
- McCourt P (1999) Genetic analysis of hormone signaling. *Ann. Rev. Plant Physiol. Plant Mol. Biol.* 50: 219–243.
- McCord JM and Fridovich I (1969)*Superoxide dismutase: an enzymic function for erythrocuprein (hemocuprein)*, *J. Biol. Chem.*, 244, 6049.
- McKently AH, Moore GA, Gardner FP(1990) *In vitro* plant regeneration of peanut from seed explants. *Crop Sci.* 30(1): 192–196.
- McKently AH, Moore GA, Gardner FP, (1991) Regeneration of peanut and perennial peanut from cultured leaf tissue. *Crop Sci.* 31: 833–837.
- Mittler R (2002) Oxidative stress, antioxidants and stress tolerance. *Trends Plant Sci.* 7:405-410.
- Mittova V, Tal M, Volokita M, Guy M (2002) Salt stress induces up-regulation of an efficient chloroplast antioxidant system in the salt-tolerant wild tomato species *Lycopersicon pennellii* but not in the cultivated species. *Physiol. Plant.* 115:393-400.
- Møller IM, Jensen PE, Hansson A (2007) Oxidative modifications to cellular components in plants. *Annu. Rev. Plant Biol.* 58:459-481.
- Moller IM (2001) Plant mitochondria and oxidative stress: electron transport, NADPH turnover, and metabolism of reactive species. *Ann Rev Plant Physiol Plant Mol Biol* 52:561–591

- Mroginski LA, Kartha KK, Shyluk JP, (1981) Regeneration of peanut (*Arachis hypogaea*) plantlets by in vitro culture of immature leaves. *Can. J. Bot.* 59: 826-830.
- Munns R, Termaat A (1986) Whole-Plant Responses to Salinity. *Australian Journal of Plant Physiology* 13(1):143–160.
- Murashige T, Skoog F(1962) A revised medium for rapid growth and bioassays with tobacco tissue cultures. *Plant Physiol.* 15: 473-497.
- MuthukumarB, Mariamma M, Veluthambi K, Gnanam A (1996). Genetic transformation of cotyledon explants of cowpea (*Vigna unguiculata* L. Walp) using *Agrobacterium tumefaciens*. *Plant Cell Rep.* 15:980-985.
- Muuns R (2002) Comparative physiology of salt and water stress. *Plant Cell Environ.* 25: 239 – 250.
- Naidu RA, Botterberg H, Subrahmanyam P, Kimmins FM, Robinson DJ, Thresh J (1999). Epidemiology of groundnut rosette virus disease, current status and future research needs. *Ann. Appl. Biol.* 132: 525-548.
- Nakayama H, Yoshida K, Ono, H., Murooka, Y., and Shinmyo, A. (2000). Ectoine, the compatible solute of *Halomonas elongata*, confers hyperosmotic tolerance in cultured tobacco cells. *Plant Physiol.* 122, 1239–1247.
- Narasimhulu SB, Reddy GM, (1983) Plantlet regeneration from different callus cultures of *Arachis hypogaea* L. *Plant Sci. Lett.* 31: 157-163.

- Noctor G, Veljovic Jovanovic S, Driscoll S, Novitskaya L, Foyer CH (2002) Drought and oxidative load in leaves of C₃ plants: a predominant role for photorespiration. *Annals of Botany* 89: 841–850.
- Niu X, Bressan RA, Hasegawa PM, Pardo JM (1995) Ion homeostasis in NaCl stress environments. *Plant Physiol.* 109: 735–742
- Nomura M, Ishitani M, Takabe T, Rai AK, Takabe T (1995) *Synechococcus* sp. PCC7942 transformed with *Escherichia coli* bet genes produces glycine betaine from choline and acquires resistance to salt stress. *Plant Physiol* 107: 703–708.
- Nuccio ML, Russell BL, Nolte KD, Rathinasabapathi B, Gage DA, Hanson AD (1998) The endogenous choline supply limits glycine betaine synthesis in transgenic tobacco expressing choline monooxygenase. *Plant J* 16:487–496.
- Nuccio ML, Rhodes D, McNeil SD, Hanson AD (1999) Metabolic engineering of plants for osmotic stress resistance. *Curr Opin Plant Biol* 2: 128–134.
- Nuccio ML, McNeil SD, Ziemak MJ, Hanson AD, Jain RK, Selvaraj G (2000a). Choline import into chloroplasts limits glycine betaine synthesis in tobacco: Analysis of plants engineered with a chloroplastic or a cytosolic pathway. *Metab. Eng.* 2: 300–311.
- Olhoft PM, Flagel LE, Donovan CM, Somers DA (2003) Efficient soybean transformation using hygromycin B selection in the cotyledonary-node method; *Planta* 216 :723-735.
- Ooms G., Hooykass P., Moolenaar G. et al. (1981), Crown gall plant

- tumours of abnormal morphology induced by Agrobacterium tumefaciens carrying mutated octopine Ti plasmids: analysis of T-DNA functions, *Gene* 14: 33-50.
- Pardo JM, Reddy MP, Yang S, Maggio A, Huh GH, Matsumoto T, Coca MA, Paino-D'Urzo M, Koiwa H, Yun DJ, Watad AA, Bressan RA & Hasegawa PM (1998) Stress signaling through Ca²⁺ / calmodulin-dependent protein phosphatase calcineurin mediates salt adaptation in plants. *Proc. Natl. Acad. Sci. USA* 95: 9681- 9686.
 - Patterson BD, Macrae EA, Ferguson IB (1984) Estimation of hydrogen peroxide in plant extracts using titanium (IV). *Anal Biochem* 139:487-492.
 - Pedreno M.A., Ferrer M.A., Gaspar Th., Munoz R, Ros Barcelo A. (1995)The polyfunctionality of cell wall peroxidases avoids the necessity of an independent H₂O₂-generating system for phenolic coupling in the cell wall. *Plant Peroxidase Newslett.* 5: 3-8.
 - Pilon-Smits EAH, Terry N, Sears T, Kim H, Zayed A, Hwang SB, van Dun K, Voogd E, Verwoerd TC, Krutwagen RWHH, Goddijn OJM (1998). Trehalose-producing transgenic tobacco plants show improved growth performance under drought stress. *J. Plant Physiol.* 152: 525-532.
 - Price A, Hendry G (1991) Iron-catalyzed oxygen radical formation and its possible contribution to drought damage in nine native grasses and three cereals. *Plant Cell Environ.* 14: 477 – 484.
 - Polle A (1997) Defense against photoxidative damage in plants. In: Scandalios, JG (ed) *Oxidative stress and molecular biology of*

antioxidants defenses (pp. 623 - 666). Cold Spring Harbor Laboratories

- Qiu Q, Guo Y, Dietrich M, Schumaker KS, Zhu JK (2001) Characterization of the plasma membrane NaC/HC exchanger in *Arabidopsis thaliana*. *Abstr. Int. Workshop Plant Membr. Biol.*, 12th, Madison, Wis., pp. 235.
- Qiu QS, Barkla BJ, Vera-Estrella R, Zhu JK, Schumaker KS (2003) Na R/HR exchange activity in the plasma membrane of *Arabidopsis thaliana*. *Plant Physiol*, 132:1041-1052.
- Rajendrakumar CSV, Suryanarayana T, Reddy AR (1997) NA helix destabilization by proline and betaine: possible role in the salinity tolerance process. *FEBS Lett* 410:201–205.
- Ramón Serrano, Alonso Rodriguez-Navarro, Ion homeostasis during salt stress in plants: *Current Opinion in Cell Biology* 2001, 13:399–404.
- Reddy LJ, Nigam SN, Moss JP, Singh AK, Subrahmanyam P, McDonald D, Reddy AGS (1996) Registration of ICGV 86699 peanut germplasm line with multiple disease and insect resistance. *Crop Sci*. 36: 821-823.
- Rhodes D, Rich PJ, Brunk DG, Ju GC, Rhodes JC, Pauly MH, Hansen LA (1989) Development of two isogenic sweet corn hybrids differing for glycine betaine content. *Plant Physiol*. 91:1112-1121.
- Rhodes D, Hanson AD (1993) Quaternary ammonium and tertiary sulfonium compounds in higher plants. *Annu Rev Plant Physiol Plant Mol Biol* 44: 357–384.
- Roberts SK (1998) Regulation of K⁺ channels in maize roots by water stress and abscisic acid. *Plant Physiol*. 116: 145 – 153.

- Roberts SK, Snowman BN (2000) The effects of ABA on channel-mediated K(1) transport across higher plant roots. *J.Exp. Bot.* 51: 1585 – 1594.
- Rock CD (2000) Pathways to abscisic acid-regulated gene expression. *New Phytol.* 148: 357–396.
- Rodriguez-Navarro A (2000) Potassium transport in fungi and plants. *Biochem. Biophys. Acta* 1469: 1 – 30.
- Romero C, Belles JM, Vaya JL, Serrano R, Culianez-Macia FA (1997). Expression of the yeast trehalose-6-phosphate synthase gene in transgenic tobacco plants: Pleiotropic phenotypes include drought tolerance. *Planta* 201: 293–297.
- Ronstein D, Bassett G, Hanson AD (2002) Metabolic Engineering of Osmoprotectant Accumulation in Plants. *Metabolic Engineering* 4, 49–56.
- Roxas VP, Smith RH Jr, Allen ER, Allen RD (1997) Overexpression of glutathione S-transferase/glutathione peroxidase enhances the growth of transgenic tobacco seedlings during stress. *Nat. Biotechnol.* 15:988–91
- Sakamoto A, Alia, Murata N (1998) Metabolic engineering of rice leading to biosynthesis of glycinebetaine and tolerance to salt and cold. *Plant Mol Biol* 38: 1011–1019.
- Sakamoto, A., and Murata, N. (2001). The use of bacterial choline oxidase, a glycinebetaine-synthesizing enzyme, to create stress-resistant transgenic plants. *Plant Physiol.* 125, 180–188.
- Saijo Y, Hata S, Kyozuka J, Shimamoto K, Izui K (2000) Over expression of a single Ca **21** -dependent protein kinase confers both cold and salt /drought tolerance on rice plants. *Plant J.* 23: 319- 327.

- Saini R, Jaiwal S, Jaiwal PK (2003) Stable genetic transformation of *Vigna mungo* L. Hepper via *Agrobacterium tumefaciens*; *Plant Cell Rep.* 21: 851-859.
- Sambrook J, Fritsch EF, Maniatis T (1989) *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY..
- Sambrook and Russell (2001), *Molecular Cloning: A laboratory manual*, Cold Spring Harbor Laboratory Press, New York, 3rd edition.
- Scandalios JG (2005) Oxidative stress: molecular perception and transduction of signals triggering antioxidant gene defenses. *Braz J Med Biol Res* 38(7):995-1014.
- Schroeder JI, Allen GJ, Hugouvieux V, Kwak JM, Waner D (2001) Guard cell signal transduction. *Annu. Rev. Plant Physiol. Plant Mol. Biol.* 52:627–58.
- Seitz MH, Stalker HT, Green CC(1987) Genetic variation for regenerative response in immature leaves cultures of the cultivated peanut, *Arachis hypogaea*. *Plant Breeding*. 98: 104–110.
- Serrano R, Culianz-Macia FA & Moreno V (1998) Genetic engineering of salt and drought tolerance with yeast regulatory genes. *Sci. Hort.* 78: 261 – 269.
- Serrano R, Mulet JM, Ríos G, Marquez JA, de Larriona IF, Leube MP, Mendizábal I, Pascual-Ahuir A, Proft MRR, Montesinos C (1999) A glimpse of the mechanism of ion homeostasis during salt stress. *J. Exp. Bot.* 50: 1023 – 1036.

- Serrano R, Rodriguez-Navarro A (2001) Ion homeostasis during salt stress in plants, *Current Opinion in Cell Biology* 13:399–404.
- Sharma KK, Anjaiah V (2000). An efficient method for the production of transgenic plants of peanut (*Arachis hypogaea* L.) through *Agrobacterium tumefaciens* - mediated genetic transformation. *Plant Sci.* 159: 7-19.
- Sheveleva E, Chmara W, Bohnert HJ, Jensen RG (1997) Increased salt and drought tolerance by d-ononitol production in transgenic *Nicotiana tabacum* L. *Plant Physiol* 115: 1211–1219.
- Sheveleva EV, Marquez S, Chmara W, Zegeer A, Jensen RG, Bohnert HJ (1998) Sorbitol-6-phosphate dehydrogenase expression in transgenic tobacco: High amounts of sorbitol lead to necrotic lesions. *Plant Physiol.* 117: 831–839.
- Sairam RK (2011) Physiology and Molecular Biology of Salinity Stress Tolerance National conference of Plant Physiology on Physiological and Molecular Approaches for Crop Improvement under Changing Environment. Osuv. Pp.33-43.
- Singsit C, Adang MJ, Lynch RE, Anderson WF, Wang A, Cardineau G, Ozias-Akins P (1997) Expression of a *Bacillus thuringiensis* cry1A(c) gene in transgenic peanut plants and its efficacy against lesser cornstalk borer. *Transgenic Res.* 6: 169-176.
- Smirnoff N (1993) The role of active oxygen in the response of plants to water deficit and desiccation. *New Phytol.* 27 – 58.
- Sorokin A., Ke X., Chen D (2000), Production of fertile transgenic wheat plants via tissue electroporation, *Plant Sci.* 156: 227-233.

- Sorokin A., Ke X., Chen D. et al. (2000), Production of fertile transgenic wheat plants via tissue electroporation, *Plant Sci.* 156: 227-233.
- Szabolcs I (1994) Soil salinization. In: Pressarkli, M (ed) Hand-book of plant crop stress (pp. 3 - 11). Marcel Dekker, New York.
- Saneoka H, Nagasaka C, Hahn DT, Yang W-J, Premachandra GS, Joly RJ, Rhodes D (1995) Salt tolerance of glycinebetaine-deficient and -containing maize lines. *Plant Physiol* 107: 631–638
- Shi H, Ishitani M, Kim C, Zhu JK (2000) The *Arabidopsis thaliana* salt tolerance gene SOS1 encodes a putative Na⁺ / H⁺ antiporter. *Proc. Natl. Acad. Sci. USA* 97: 6896 – 6901.
- Smart CC, Flores S (1997) Overexpression of D-myo-inositol-3-phosphate synthase leads to elevated levels of inositol in *Arabidopsis*. *Plant Mol. Biol.* 33: 811 – 820.
- Tallury SP, Hilu KW, Milla SR, Friend SA, Alsaghir M, Stalker HT, Quandt D, (2005) Genomic affinities in *Arachis* section *Arachis* (Fabaceae): molecular and cytogenetic evidence. *Theor. Appl. Genet.* 111: 1229-1237.
- Tao R, Uratsu SL, Dandekar AM (1995). Sorbitol synthesis in transgenic tobacco with apple cDNA encoding NADP-dependent sorbitol-6-phosphate dehydrogenase. *Plant Cell Physiol.* 36: 525–532.
- Tanaka Y, Hibino T, Hayashi Y, Tanaka A, Kishitani S, Takabe T, Yokota S, Takabe T (1999) Salt tolerance of transgenic rice overexpressing yeast mitochondrial Mn-SOD in chloroplasts. *Plant Sci.* 148: 131 – 138.

- Tarczynski MC, Jensen RG, Bohnert HJ (1993) Stress protection of transgenic plants by production of the osmolyte mannitol. *Science* 259: 508–510.
- Taylor IB, Burbidge A, Thompson AJ (2000) Control of abscisic acid synthesis. *J. Exp. Bot.* 51: 1563 – 1574.
- Thomas JC, Smigocki AC, Bohnert HJ (1995) Light-induced expression of ipt from *Agrobacterium tumefaciens* results in cytokinin accumulation and osmotic stress symptoms in transgenic tobacco. *Plant Mol. Biol.* 27: 225 – 235.
- Tiwari S, Tuli R (2008) Factors promoting efficient in vitro regeneration from de-embryonated cotyledon explants of *Arachis hypogaea* L. *Plant Cell Tissue Org. Cult.* 92: 15-24.
- Tiwari S, Tuli R (2009) Multiple shoot regeneration in seed-derived immature leaf explants of peanut (*Arachis hypogaea* L.). *Scientia Horticulturae*, 121(2): 223–227.
- Vaidyanathan H, Sivakumar P, Chakrabarty R, Thomas G (2003) Scavenging of reactive oxygen species in NaCl-stressed rice (*Oryza sativa* L.) - differential response in salt-tolerant and sensitive varieties. *Plant Sci.* 165:1411-1418.
- Venkatachalam P, Geetha N, Jayabalan N, Saravanababu, Sita L (1998) Agrobacterium-Mediated Genetic Transformation of Groundnut (*Arachis hypogaea* L.): An Assessment of Factors Affecting Regeneration of Transgenic Plants. *J. Plant Res.* 111: 565-572.
- Venkatachalam P, Geetha N, Khandelwal A, Shaila MS, Lakshmi Sita G (2000) *Agrobacterium*-mediated genetic transformation and

- regeneration of transgenic plants from cotyledon explants of groundnut (*Arachis hypogaea* L.) via somatic embryogenesis. *Curr. Sci.* 78(9): 1130–1136.
- Vernon DM, Tarczynski MC, Jensen RG, Bohnert HJ (1993) Cyclitol production in transgenic tobacco. *Plant J* 4: 199–205.
 - Walkerpeach C. and Velten J. (1994) Agrobacterium mediated gene transfer to plant cells: cointegrate and binary vector systems, *Plant Molecular Biology Manual* B1: 1-19..
 - Wang H and Allen RD (1999) *Plant Cell Physiol.*, 40: 725–732.
 - Weigel P, Weretilnyk EA, Hanson AD(1986) Betaine aldehyde oxidation by spinach chloroplasts. *Plant physiology*, 82:753-759.
 - Welinder KG(1991) Bacterial catalase peroxidases are gene duplicated members of the plant peroxidase superfamily: *Biochim.Biophys. Acta*.1080(3):215-220.
 - Weretilnyk, EA, Hanson AD (1990) Molecular cloning of a plant betaine-aldehyde dehydrogenase, an enzyme implicated in adaptation to salinity and drought. *Proc. NatlAcad. ScL USA*,87, 2475-2749.
 - Yan Li (2009) Effects of NaCl Stress on Antioxidative Enzymes of *Glycine Soja sieb* Pakistan Journal of Biological Sciences, 12: 510-513.
 - Yancey PH, Clark ME, Hand SC, Bowlus RD, Somero GN (1982) Living with water stress: evolution of osmolyte systems. *Science*, .217: 1214–1222.
 - Yang SX, Zhao YX, Zhang Q, He YK, Zhang H & Luo (2001) HAL1 mediate salt adaptation in *Arabidopsis thaliana*. *Cell Res.* 11: 142 – 148.

- Yang H, Singsit C, Wang A, Gonsalves D, Ozias-Akins P (1998) Transgenic peanut plants containing a nucleocapsid protein gene of tomato spotted wilt virus show divergent levels of gene expression. *Plant Cell Rep.* 17: 693-699.
- Yoshioka Y, Kiyosue T, Katagiri T, Ueda H, Mizoguchi T, Yamaguchi-Shinozaki K, Wada K, Harada Y & Shinozaki K (1995) Correlation between the induction of a gene for delta 1-pyrroline-5-carboxylate synthetase and the accumulation of proline in *Arabidopsis thaliana* under osmotic stress. *Plant J.* 7: 751- 760.
- Zaenen I., Van Labeke N., Teuchy H. et al. (1974), Super-coiled circular DNA in crown gall inducing *Agrobacterium* strains, *J. Mol. Biol.* 86: 109-127.
- Zhang HX, Blumwald E (2001) Transgenic salt-tolerant tomato plants accumulate salt in foliage but not in fruit. *Nat. Biotechnol.* 19: 765 – 768.
- Zhou S, Chen X, Zhang X, Li Y.(2008). Improved salt tolerance in tobacco plants by co-transformation of a betaine synthesis gene BADH and a vacuolar Na⁺/H⁺ antiporter gene SeNHX1. *Biotechnol Lett.* 30(2):369-76
- Zhou B, Guo Z, Liu Z (2005) Effects of abscisic acid on antioxidant systems of *Stylosanthes guianensis* (Aublet) Sw. under chilling stress. *Crop Sci* 45: 599–605
- Zhu JK, Hasegawa PM & Bressan RA (1997) Molecular aspects of osmotic stress. *Crit. Rev. Plant Sci.* 16: 253 – 277.
- Zhu JK (2000) Genetic analysis of plant salt tolerance using *Arabidopsis*. *Plant Physiol.* 124: 941 – 948.

- Zhu JK (2001) Plant salt tolerance. *Trends Plant Sci.* 6: 66 - 71.
- Zhu JK (2002) Salt drought stress signal transduction in plants. *:Ann. Rev. Plant Biol.* 53: 247 – 273.
- Zhu JK (2003) Regulation of ion homeostasis under salt stress: Current Opinion in Plant Biology 2003, 6:441–445.
- Zhu JK, Chinnusamy V, Zhu J (2006) Salt stress signaling and mechanisms of plant salt tolerance. *Genet Eng (N Y)* 27:141-177.