
B I B L I O G R A P H Y

BIBLIOGRAPHY

- Addicott, T.T. (1970) Plant hormones in the control of abscission. *Biol. Rev.* 45, 485-524.
- Akazawa, T. and Conn, E.E. (1958) The oxidation of reduced pyridine nucleotides by peroxidase. *J. Biol. Chem.* 232, 403-415.
- Altman, A., Kaur-Sawhney, R. and Galston, A.W. (1977) Stabilization of oat leaf protoplasts through polyamine-mediated inhibition of senescence. *Plant Physiol.* 60, 570-574.
- Altman, A. and Bachrach, U. (1981) Involvement of polyamines in plant growth and senescence. In 'Advances in polyamine research'. Vol.3. (Caldarera, P.M., Zappin, V. and Bachrach, U. Eds.). 365-375 Raven Press, New York.
- Altman, A. (1982a) Retardation of radish leaf senescence by polyamines. *Physiol. Plant.* 54, 189-193.
- Altman, A. (1982b). Polyamines and wounded storage tissues. Inhibition of RNase activity and solute leakage, *Physiol. Plant.* 54, 194-198.
- Altman, A., Friedman, R., Amir, D. and Levin, N. (1982) Polyamine effects and metabolism in plants under stress conditions. In 'Plant growth substances' (Wareing, P.F. Ed.). 483-494 Academic Press, London, New York.
- Alvarez, M.R. (1968) Temporal and spatial changes in peroxidase activity during fruit development in *Encyclia tampensis* (orchidaceae). *Amer. J. Bot.* 55, 619-625.

- Anguillesi, M.C., Grilli, J. and Floris, C. (1980) Rate of synthesis of spermine and spermidine in germinating seeds of Glycine, Helianthus and Triticum. *Plant* 148, 24-27.
- Apelbaum, A., Burgoon, A.C., Anderson, J.D., Lieberman, M., Ben-Arie, R. and Matto, A.K. (1981) Polyamines inhibit biosynthesis of ethylene in higher plants. *Plant Physiol.* 68, 453-456.
- Bachrach, U. (1973) 'Functions of naturally occurring polyamines'. Academic Press, New York.
- Bagni, N., Caldorera, C.M. and Moruzzi, G. (1967) Spermine and spermidine distribution during wheat growth. *Experientia* 23, 139-143.
- Bagni, N. (1968) Spermine e spermidine nei semi. *G. Botanico. Ital.* 102, 67-72.
- Bagni, N. (1970) Metabolic changes of polyamines during the germination of Phaseolus vulgaris. *New Phytol.* 69, 159-164.
- Bagni, N., Corrini, E. and Fracassini, D.S. (1971) Growth factors and nucleic acid synthesis in Helianthus tuberosus. I. Reversal of actinomycin-D inhibition by spermidine. *Physiol. Plant.* 24, 112-117.
- Bagni, N. and Fracassini, D.S. (1974) The role of polyamines as growth factors in higher plants and their mechanism of action. In 'Plant growth substances', 1205-1217. Hirockawa Pub. Co., Tokyo.
- Bagni, N. and Fracassini, D.S. (1979) Polyamines and Plant tumours. *Ital. J. Biochem.* 28, 392-394.
- Bagni, N., Fracassini, D.S. and Torrigiani, P. (1981a) In 'Advances in polyamine research'. Vol.3 (Caldarera, C.M., Zappin, V. and Bachrach, U. Eds.). 377-388, Raven Press, New York.
- Bagni, N., Torrigiani, P. and Barbieri, P. (1981b). Effect of various inhibitors of polyamine synthesis on growth of Helianthus tuberosus. *Med. Biol.* 59, 403-409.

- Bagni, N., Fracassini, D.S. and Torrigiani, P. (1982a)
Polyamines and cellular growth processes in higher plants. In 'Plant growth substances' (Wareing, P.F. Ed.) 473-482, Academic Press, London, New York.
- Bagni, N., Torrigiani, P. and Barbieri, P. (1982b)
In 'Advances in polyamine research' Vo.4 (Bachrach, U., Kaye, A.M. and Chayen, R. Eds.) 176-192, Raven Press, New York.
- Balke, N.E., Sze, H., Leonard, R.T. and Hodges, T.K. (1974)
Cation sensitivity of the plasma membrane ATPase of oat roots. In 'Membrane transport in plants'. (Zimmernann, U and Dainty, J. Eds.) 301-306, Springer-Verlag Berlin.
- Bar-Akiva, A. (1975) Effects of foliar application of nutrients on creasing of valencia oranges. J. Horti. Sci. 50, 85.
- Bartlett, D.H. and Ballard, N.E. (1975) The effectiveness of guazatine and imazalil as seed treatment fungicides in barley. Proc. 8th British Insecticide and fungicide Conference. 205-211.
- Bassim, T.A.H. and Peckett, R.C. (1975) The effect of membrane stabilizers on phytochrome controlled anthocyanin biosynthesis in Brassica oleracea. Phytochemistry 14, 731-733.
- Basso, L.C. and Smith, T.A. (1973) Effect of mineral deficiency on amine formation in higher plants. Phytochemistry 13, 875-883.
- Bayse, G.S., Michaels, A.W. and Morrison, M. (1972)
The peroxidase catalyzed oxidation of tyrosine. Biochim. Biophys. Acta. 284, 34-42.
- Beauchamp, C. and Fridovitch, P.W. (1970) A mechanism for the production of ethylene from methional. The generation of the hydroxyl radical by xanthine oxidase. J. Biol. Chem. 245, 2641-2646.

- Bell, E.A. (1960) Canavanine in the Leguminosae. *Biochem. J.* 75, 618-620.
- Ben-Arie, R. and Faust, M. (1980) ATPase in ripening straw berries. *Phytochemistry* 19, 1631-1636.
- Besford, R.T. and Deen, J.L.W. (1977) Peroxidase activity as an indicator of the iron status of conifers. *Sci. Hort.* 7, 161-168.
- Bidwell, R.G.S. and Durzan, D.J. (1975) Some recent aspects of nitrogen metabolism. In 'Historical and current aspects of plant physiology'. A symposium honoring Steward, F.C. Ed. P.J. Davies. The New York State College of Agriculture and Life Sciences at Cornell University, Ithaca, New York 152-225.
- Birecka, H. and Miller, A. (1974) Cell wall and protoplast isoperoxidases in relation to injury, indole acetic acid and ethylene effects. *Plant Physiol.* 53, 569-574.
- Birecka, H., James, C. and Paul, U. (1976) Cell isoperoxidases in sweet potato plants in relation to mechanical injury and ethylene. *Plant Physiol.* 57, 74-79.
- Birecka, H., Dinolfo, T.E., Martin, W.D. and Fröhlich, M. (1984) Polyamines and leaf senescence in pyrrolizidine alkaloid bearing *Heliotropium* plants. *Phytochemistry* 23, 991-997.
- Bloch, K. and Schoenheimer, R. (1941) The biological precursors of creatine. *J. Biol. Chem.* 138, 167-194.
- Boldt, A., Miersch, and Reinbothe, H. (1971) The metabolism of agmatine in fruit bodies of the fungus *Panus tigrinus*. *Phytochemistry* 10, 731-738.
- Boyer, P.D., Chance, B., Ernster, L., Mitchell, P., Racker, E. and Slater, E.C. (1977) Oxidative phosphorylation and photophosphorylation. *Ann. Rev. Biochem.* 46, 955-1026.
- Brian, T. and Tull Susan, E. (1981) Photoregulation of potassium ion-ATPase in vitro by red and far-red light in extracts from cucumber hypocotyles. *Z. Pflanzenphysiol.* 102, 283-292.

- Brunner, H. (1978) Einfluss Verschiedener Wuchsstoffe and Stoffwechselgifte and Wurzelregenerierendes Gewebe Von *Pharaseolus Vulgaris*, L. Verander-Vungen des Wuchstoffsgehalters Sowie der Peroxidase Und der IES - oxidase-aktivitat. Z. Pflanzenphysiol. 88, 13-23.
- Buescher, R.W., Slstrunk, W.A. and Brady, P.L. (1975) Effects of ethylene on metabolic and quality attributes in sweet potato roots. J. Food Sci. 40, 1018-1020.
- Burg, S.P. and Burg, E.A. (1963) Molecular requirements for the biological activity of ethylene. Plant Physiol. 42, 144-152.
- Byrde, R.J.W., Clifford, D.R. and Woodcock, D. (1962). Fungicidal activity and chemical constitution XI. The activity of n-alkyl guanidine acetates. Ann. Appl. Biol. 50, 291-298.
- Cabanne, F., Martin-Tanguy, J. and Martin, C. (1977) Phenolamines associes a linoduction florale et a l'etat reproduction du *Nicotiana tabacum* var xanthi. Physiol. Veg. 15, 429-443.
- Cedel, T.E. and Roux, S.J. (1980) Further characterization of the in vitro binding of phytochrome to a membrane fraction enriched for mitochondria. Plant Physiol. 66, 696-703.
- Chetal, S. and Nainawatee, H.S. (1976) Some enzyme changes associated with water stress in germinating paddy and barley seeds. Plant Biochem. J. 3, 105-110.
- Cheurey, P.S., Smith, H.H. and Combatti, N.C. (1973) Effects of x irradiation and indole acetic acid on specific peroxidase isoenzymes in pith tissue of a *Nicotiana* amphiploid. Amer. J. Bot. 60, 853-857.
- Chowdhary, V., Maherchandani, N., Sharma, D.R. and Jain, R.K. (1980) Effects of growth regulators on the activity of α -amylase, peroxidase and total soluble proteins in cultured cells of wheat (*Triticum aestivum*). Proc. Natl. Symp. Plant Tissue Cult. (Rao, P.S., Heble, M.R., Chanda, M.S. Eds.). DAE India, 417-426.

- 151
- Clark, D.D., Mycek, M.J., Neidle, A. and Wacisch, H. (1959)
The incorporation of amines into protein. Arch. Biochem.
Biophys. 79, 338.
- Cocucci, S. and Bagni, N. (1968) Polyamine - induced activa-
tion of protein synthesis in ribosomal preparation from
Helianthus tuberosus tissue. Life Sci. 7, 113-120.
- Cocucci, S. and Cocucci, M. (1977) Effect of abscissic acid
and fusaric acid on the development of ATPase and potassium
uptake in germinating radish seeds. Plant Sci. lett.
10, 85-95.
- Cohen, A.S. and Zalik, S. (1978) Magnesium replacement by
polyamines in higher plant polyphenylalanine synthesis.
Phytochemistry, 17, 113-118.
- Cohen, A.S., Popovic, R.B. and Zalik, S. (1979) Effect of
polyamines on chlorophyll and protein content, photo-
chemical activity and chloroplast ultrastructure of
barley leaf discs during senescence. Plant Physiol.
64, 717-720.
- Cohen, E.S., Arad, S., Heimer, Y.M. and Mizrah, Y. (1982)
Participation of ornithine decarboxylase in early stages
of fruit development. Plant Physiol. 70, 540-543.
- Cohen, S.S. and Raina, A. (1967). Some interactions of
natural polyamines and nucleic acids in growing and
virus infected bacteria. In Vagel HJ Lampen, J.O. and
Bryson, V. (Eds.) 'Organizational Biosynthesis.'
157-184.
- Cohen, S.S., Morgan, S. and Streibel, E. (1969) The polyamine
content of the tRNA. Proc. Natl. Acad. Sci. U.S.A.
64, 669-676.
- Cohen, S.S. (1971) 'Introduction to the polyamines'
Prentice-Hall, Englewood Cliffs. N.J.
- Cohen, S.S., Bolint, R. and Sindhu, R.K. (1981) The synthesis
of polyamines from methionine in intact and disrupted leaf
protoplasts of virus-infected plant protoplasts. Plant
Physiol. 68, 1150-1155.

- Coleman, R.G. and Richards, F.J. (1956) Physiological studies in plant nutrition. XVIII Some aspects of nitrogen metabolism in barley and other plants in relation to potassium deficiency. *Ann. Bot.* 20, 393-409.
- Colombo, R. and Ferrari-Bravo, P. (1982) Effect of indole acetic acid, 2-4dichlorophenoxy acetic acid at concentrations inhibiting cell enlargement on the hydrogen ion, potassium ion exchange system and the respiratory metabolism in pea stem segments. *Plant Sci. lett.* 25, 247-259.
- Crocomo, O.J. and Basso, L.C. (1974) Accumulation of putrescine and related amino acids in potassium deficient sesamum. *Phytochemistry* 2, 537-540.
- Dai, Y.-r. and Galston, A.W. (1981) Simultaneous phytochrome - controlled promotion and inhibition of arginine decarboxylase activity in buds and coleoptiles of etiolated peas. *Plant Physiol.* 67, 266-269.
- Dai, Y.-r., Kaur-Sawhney, R. and Galston, A.W. (1982) Promotion by gibberellic acid of polyamine biosynthesis in internodes of light grown dwarf peas. *Physiol. Plant.* 68, 103-105.
- De Greef, J.A., Van Hoof, R. and Cavbergs, R. (1977) Light induced changes in auxin metabolism during hook opening of etiolated bean seedlings. *Biochem. Soc. Trans.* 5, 1049-1051.
- Decleire, M.M., Honorez, Y.P. and Van Rocy, G.V. (1982) Peroxidase, catalase and glycolate oxidase activity after treatment with various herbicides. *Weed Res.* 22, 85-88.
- Dencheva, A.V. and Klisourska, D.Y. (1976) Activity and isoenzyme composition of the peroxidase in the zones of growth and differentiation of the cells in the shoots of maize. *C.R. Acad. Bulg. Sci.* 1179-1182.
- Dendsay, J.P.S. and Sacher, R.C. (1978) Hormonal control of peroxidase activity in germinating mung bean cotyledons. *Phytochemistry* 17, 1017-1019.

- Dendsay, J.P.S. and Sacher, R.C. (1982) Hormonal control of peroxidase activity and it's relationship with growth in mung bean seedlings. *Plant Sci. lett.* 26, 251-256.
- Desai, B.B. and Deshpanday, P.B. (1979) Influence of some growth regulators on relative activities of some oxidative enzymes during banana ripening. *Indian J. Plant. Physiol.* 22, 186-191.
- Dhindsa, R.S., Plumba-Dhindsa, P. and Thorpe, T.R. (1981) Leaf senescence : Correlated with increased levels of membrane permeability and lipid peroxidation and decreased levels of superoxide dismutase and catalase. *J. Exp. Bot.* 33, 93-101.
- Dhindsa, R.S., Plumba-Dhindsa, P. and Reid, D.M. (1982) Leaf senescence and lipid peroxidation : Effects of some phytohormones and scavengers of free radicals and singlet oxygen. *Physiol. Plant.* 56, 453-457.
- D'orazi, D., Fracassini, D.S. and Bagni, N. (1979). Polyamine effects on the stability of DNA-Actinomycin D. Complex. *Biochem. Biophys. Res. Commun.* 90, 362-367.
- Dubucq, M. (1976) Comparative effects of auxin, kinetin and etherel on the growth and isoperoxidases of *Lens culinaris* med. *Bull. Soc. R. Bot. Belg.* 109, 93-108.
- Dumortier, F.M., Flores, H.E., Shekhawat, N.S. and Galston, A.W. (1983) Gradients of polyamines and their biosynthetic enzymes in coleoptiles and roots of corn. *Plant Physiol.* 72, 915-918.
- Dupont, F.M., Burke, L.L. and Spanswick, R.M. (1981) Characterization of partially purified adenosine triphosphotase from a corn root plasma membrane fraction. *Plant Physiol.* 67, 59-63.
- Elliott, D.C. (1982) Levels of membrane components regulated by cytokinins, temperature and ageing pretreatments of cotyledons. *Plant Sci. lett.* 26, 311-323.
- Endress, A.G., Suarez, S.J. and Taylor, O.C. (1980) Peroxidase activity in plant leaves exposed to gaseous Hcl or ozone. *Environ. Pollut. Ser. A.* 22, 47-58.

- Erdei, L., Toth, I. and Zsolodos, F. (1979) Hormonal regulation of calcium ion stimulated potassium ion influx and calcium ion-potassium ion-ATPase in rice roots. *Physiol. Plant.* 45, 448-452.
- Erdei, L., Stuvier, B.E.P. and Kuiper, P.J.C. (1980) The effect of salinity on lipid composition and magnesium ion stimulated ATPase in salt sensitive and salt tolerant *Plantago* species. *Physiol. Plant.* 49, 315-319.
- Even-Chen, Z., Matto, A.K. and Goren, R. (1982) Inhibition of ethylene biosynthesis by Aminoethoxy-Vinyl glycine and polyamines, shunts label from 3,4 (^{14}C) methionine into spermidine in aged orange peel discs. *Plant Physiol.* 69, 385-388.
- Ferreria, A.G. and Stobart, A.K. (1975) Germination of hazel seed I. Behaviour of ATPase and acid phosphatase. *Iheringia Ser. Bot.* (1975) 20, 65-77.
- Fisher, J.B. and Hodges, T.K. (1969) Monovalent ion stimulated adenosine triphosphatase from oat roots. *Plant Physiol.* 44, 385-395.
- Fiske, C.H. and Subbarow. (1925) The colorimetric determination of phosphorus. *J. Biol. Chem.* 66, 375-400.
- Flayeh, K.A.M., Shayma, I.N., Delym, A.L. and Hajar, M.A. (1984) 1,3-Diaminopropane and spermidine in *cucumis sativus* (cucumber). *Phytochemistry* 23, 989-990.
- Flores, H.E. and Galston, A.W. (1982) Polyamines and plant stress : Activation of putrescine biosynthesis by osmotic shock. *Science* 217, 1259-1261.
- Flores, H.E., Young, N.D., and Galston, A.W. (1984) Polyamine metabolism and plant stress in cellular and molecular biology of plant stress. *ULCA symposia on cellular and molecular biology. New series Vol.22* (Joe L. Key and Tusne Kosage. Eds.) Alan R. Liss, Inc., New York.
- Fluckiger, W. (1977) Interaction of 2,4-D and CCC on peroxidase activity and growth of wheat. *Z. Pflanzenphysiol.* 83, 89-93.

- Fontanini, F. and Scarpa, B. (1961). Sull'attivita anti-proliferativa della deca-e della dodecametilenguanidina. Boll. Soc. Med-Chir. Modena. 61 ; 877-881.
- Fracassini, D.S., Bagni, N., Cionini, P.G. and Bennici, A. (1980). Polyamines and nucleic acids during the first cell cycle of *Helianthus tuberosus* tissue after the dormancy-break. *Planta*. 148, 332-337.
- Fracassini, D.S. and Alessandri, M. (1982). In 'Advances in polyamine research' (Bachrach, U., Kaye, A.M. and Chayen, R. Eds.) Vol.4. Raven Press, New York.
- Frenkel, C. (1972). Involvement of peroxidase and indole-3-acetic acid oxidase isoenzymes from pear, tomato and blue-berry fruit in ripening. *Plant Physiol.* 49, 757-763.
- Friedman, S. (1957). Carbamylation of polyamines. *Fed.Proc.* 16, 183-187.
- Friedman, R., Altman, A. and Bachrach, U. (1982). Polyamines and root formation in mung bean hypocotyl cuttings. *Plant Physiol.* 70 ; 844-848.
- Fuhrer, J., Kaur-Sawhney, R., Shih, L.M. and Galston, A.W. (1982). Effects of exogenous 1,3-diaminopropane and spermidine on senescence of oat leaves II Inhibition of ethylene biosynthesis and possible mode of action. *Plant Physiol.* 70, 1597-1600.
- Galston, A.W., Altman, A. and Kaur-Sawhney, R. (1978) Polyamines, ribonuclease and the improvement of oat leaf protoplasts. *Plant Sci. Lett.* 11, 69-79.
- Galston, A.W. and Kaur-Sawhney, R. (1982). Polyamines : Are they a new class of plant growth regulators? In 'Plant growth substances' (Wareing P.F. Ed.). 451-461. Academic Press, London, New York.
- Galston, A.W. (1983) Polyamines as modulators of plant development. *Bio Science* 33 ; 382-388.
- Gary-Bobo, C.M. (1970) Effect of Ca^{2+} on the water and non electrolyte permeability of phospholipid membranes. *Nature* 228 ; 1101.

- Gaspar, Th., Teppaz-Misson, C. and Courdureau, J.C. (1973).
Isoperoxidases in jerusalem artichoke in relation to
tuberization and dormancy. Biol. Plant. 15, 339-345.
- Gaspar, Th., Bouchet, M., Khan, A.A. and Fries, D. (1975)
Cyto~~kin~~in interaction with abscissic acid and
coumarin in relation to growth and isoperoxidase of
lentil. Bull. Soc. Roy. Bot. Belg. 108, 5-15.
- Gaspar, Th., Wyndacle, R., Bouchet, M. and Ceulemans, E.
(1977) Peroxidase and α -amylase activities in
relation to germination of dormant and non-dormant
wheat. Physiol. Plant. 40, 11-14.
- Gaspar, Th. (1981) Rooting and flowering : Two antagonistic
Phenomena from a hormonal point of view. In 'Aspects
and Prospects of plant growth regulators'. Monograph 6.
(Jeffcoat, B. Ed.). British Plant Growth Regulator
Group. Wantage, 39-49.
- Gaspar, Th., Penel, C., Thorpe, T. and Greppin, H. (1982)
'Peroxidases 1970-1980. Survey of their biochemical
and physiological roles in higher plants'. Univ. of
Geneve, Geneve.
- Giaquinta, R. (1976) Evidence for phloem loading from the
apoplast chemical modifications of membrane sulfhydryl
groups. Plant Physiol. 57, 872-875.
- Gilbert, D.A., and Sink, K.C. (1971) Regulation of endogenous
indole acetic acid and keeping quality of poinsettia.
J. Amer. Soc. Hortic.Sci. 96, 3-7.
- Gomez-Lepe, B.E. and Jimenez. (1975) Alkylguanidines as inhibitors
of K^+ transport in isolated barley roots. Plant Physiol.
56, 460-461.
- Gomez-Lepe, B. (1976) Octylguanidine as inhibitor of barley
seedling growth. Plant Physiol. 57, 430S.
- Gomez-Lepe, B. and Hodges, T.K. (1978) Alkylguanidine
inhibition of ion absorption in oat roots.
Plant Physiol. 61, 865-870.

- Gomez-Lepe, B. and Lee-Stadelmann, O.Y., Polta, J.P. and Stadelmann, E.J. (1979). Effect of octylguanidine on cell permeability and other protoplasmic properties of *Allium cepa* epidermal cells. *Plant Physiol.* 64, 131-138.
- Gomez-Puyou, A., Sandoval, E., Lotina, B., Gomez-Puyou, M.T. (1973) Guanidine sensitive transport of Na^+ and K^+ in mitochondria. *Biochem. Biophys. Res. Comm.* 74, 78.
- Goren, R., Palavan, N., Flores, H.E. and Galston, A.W. (1982a) Changes in polyamine titer in etiolated pea seedlings following red light treatment. *Plant and Cell Physiol.* 23, 19-23.
- Goren, R., Palavan, N. and Galston, A.W. (1982b) Separating phytochrome effects on arginine decarboxylase activity from its effect on growth. *J. Plant Growth Regul.* 1, 61-73.
- Grubmeyer, C. and Spencer, M. (1978) Oligomycin sensitive ATPase of submitochondrial particles from corn. *Plant Physiol.* 61, 567-569.
- Guggenheim, M. (1958) Die Biogenen amine in der pflanzenwelt. In 'Encyclopedia of plant Physiology'. Vol. 8, 887-988. Springer-Verlag.
- Guifoyle, T.J. and Hanson, J.B. (1973) Increased activity of chromatin-bound ribonucleic acid polymerase from soyabean hypocotyl with spermidine and high ionic strength. *Plant Physiol.* 51, 146-148.
- Haard, N.F. (1973) Upsurge of particulate peroxidase in ripening banana fruit. *Phytochemistry* 12 : 555-560.
- Haard, N.F., Sharma, S.C., Wolfe, R. and Frankel, C. (1974) Ethylene induced isoperoxidase changes during fiber formation in post harvest Asparagus. *J. Food Sci.* 39, 452-456.
- Haddock, B.A. and Jones, C.W. (1977). Bacterial respiration. *Bacteriol Rew.* 41, 47-99.

- Hale, C.R., Coombe, B.G. and Hawker, J.S. (1970) Effects of ethylene and 2-chloroethylphosphonic acid on the ripening of graps. *Plant Physiol.* 45, 620-623.
- Hargreaves, J.A. (1980) A possible mechanism for the phytotoxicity of the phytoalexin phaseolin. *Physiol. Plant Pathol.* 16, 351-355.
- Harkin, J.M. and Obst. Y.R. (1973) Lignification in trees. Indication of exclusive peroxidase participation. *Science* 180, 296-298.
- Hasnain, E.S., Khan, M.A. and Upadhyaya, K.C. (1980) Effect of polyamines on thermal damage of *chlamydomonas reinhardtii* protoplasts. *Indian J. Exp. Biol.* 18, 1037-1040.
- Hault, H.E., Maynard, D.N. and Barker, A.V. (1970) Ammonium tolerance of some cultivated solanaceae. *J. Am. Soc. Hortic. Sci.* 95, 345-351.
- Heath, R.L. and Packer, L. (1968) Photoperoxidation in isolated chloroplasts I Kinetics and stoichiometry of fatty acid peroxidation. *Arch. Biochem. Biophys.* 125, 189-198.
- Heby, O. (1981) Role of polyamines in the control of cell proliferation and differentiation. *Differentiation* 19, 1-20.
- Heimer, Y.M., Mizrahi, Y. and Bachrach, U. (1979) Ornithine decarboxylase activity in rapidly proliferating plant cells. *FEBS. Lett.* 104, 146-148.
- Heimer, Y.M., Arad, S.M. and Mizrahi, Y. (1982) Participation of ornithine decarboxylase in early stages of tomato fruit development. *Plant Physiol.* 70, 540-543.

- Hellergren, J., Widell, S., Lundborg, T. and Kylin, A. (1983)
Frost hardiness development in *Pinus sylvestris*.
The involvement of a K^+ -stimulated Mg^{2+} -activated
ATPase from purified plasma membranes of pine.
Physiol. Plant. 58, 7-12.
- Hendricks, S.D. and Borthwick, H.A. (1967) The function of
phytochrome in regulation of plant growth. *Proc. Natl.
Acad. Sci. USA.* 58, 2125-2130.
- Hendricks, S.D. and Tylarson, R.B. (1974) Promotion of seed
germination by nitrate, nitrite, hydroxylamine and
ammonium salts. *Plant Physiol.* 54, 304-309.
- Hendricks, S.D. and Tylarson, R.B. (1975) Breaking of seed
dormancy by catalase inhibition. *Proc. Natl. Acad.
Sci. USA.* 72, 306-309.
- Heinrich-Hirsch, B., Ahlers, J. and Peter, H.W. (1977)
Inhibition of (sodium-potassium) dependent ATPase
from chick brain by polyamines. *Enzyme* 22, 235.
- Henry, E.W. and Jensen, T.E. (1973) Peroxidase in tobacco
abscission zone tissue I. Fine structural localization
in cell walls during ethylene-induced abscission.
J. Cell. Sci. 13, 591-601.
- Henry, E.W. and Jorden, W.III. (1977) The enzymic response of
pea (*Pisum sativum*) stem sections to applied indole
acetic acid, gibberellic acid and ethephon : catalase,
peroxidase, polyphenol oxidase. *Z. Pflanzenphysiol.*
84 : 321-327.
- Henry, E.W., Demorrow, J.M., Richard, L.B. and O'Connor, M.N.
(1979) Effect of ethephon and UV irradiation on auxin
destruction in 'Little Marvel' dwarf pea (*Pisum sativum*).
Z. Pflanzenphysiol. 92, 469-472.
- Henry, E.W. and Richard, L.B. (1979) A study of the effects
of applied ethephon on enzyme (polyphenol oxidase,
peroxidase, catalase ATPase) activity in tobacco
(*Nicotiana tabacum*) apical tissue chloroplasts.
Z. Pflanzenphysiol. 92, 11-22.

- Hill, B.S. and Hill, A.E. (1973) ATP-driven chloride pumping and ATPase activity in the Limonium salt gland. *J. Membrane. Biol.* 12, 145-148.
- Hill, J.M. and Mann, P.J.G. (1968) Some properties of plant diamine oxidase, a copper containing enzyme. In: Recent aspects of nitrogen metabolism in plants. (Hewitt E.J. and Cutting, C.V. eds.) 149-161. Academic Press, London.
- Hill, J.M. (1970) The oxidation of pyridoxal and related compounds by pea seedling extracts or systems containing peroxidase. *Phytochemistry* 9, 725-734.
- Hillic, B. (1974) The permeability of the sodium channel of organic cations in myelinated nerve. *J. Biol. Chem.* 58, 599-619.
- Hodges, T.K. (1976) ATPase associated with membranes of plant cells. In 'Encyclopedia of Plant Physiol'. (Luttge, U. Pitman, M.G. eds.) New Series Vol.2, 260-283. Springer-Verlag, Berlin.
- Horsmann, D.C. and Wellburn, A.R. (1977) Effect of SO₂ polluted air upon enzyme activity in plants originating from areas with different annual mean atmospheric SO₂ concentrations. *Environ. Pollut.* 13, 33-39.
- Huault, C. and Klein, D. (1980) Controle par le phytochrome des activites peroxydasiques de la plantule de Radis (*Raphanus sativus* L.). *C.R. Acad. Sc. Paris.* 290, 1039-1041.
- Igarashi, K., Kumagai, H., Watanabe, Y., Toyoda, N. and Hirose, S. (1975) Changes of substrate specificity by polyamines of ribonucleases which hydrolyze ribonucleic acid at linkages attached to pyrimidine nucleotides. *Biochem. Biophys. Res. Commun.* 67, 1070-1077.
- Janne, J., Poso, H. and Raines, A. (1978) Polyamines in rapid growth and cancer. *Biochim. Biophys. Acta.* 473, 241-293.
- Jellinck, P.H. and Fletcher, R. (1971) Interaction of (4-¹⁴C) estradiol and its metabolites with polynucleotides in the presence of peroxidase. *Can. J. Biochem.* 49, 885-890.
- Johnson, W.T. and Nordlie, R.C. (1980) Stimulation of Glucose-6-phosphatase by polyamines ~~is~~ is a membrane-mediated event. *Life Sciences* 26, 297-302.

- Jose, A.M. (1977) Phytochrome modulation of ATPase activity in a membrane fraction from phaseolus. *Planta* 137, 203-206.
- Kanazawa, T. Yanagisawa, T. and Tamiga, H. (1966) Aliphatic amines occurring in chlorella cells and changes in their contents during the life cycle of the alga. *Z. Pflanzenphysiol.* 54, 57-62.
- Kasama, K. and Yamaki, T. (1973) Auxin action on membrane bound magnesium activated ATPase. *Plant Growth Subst. Proc. Int. Conf. 8th.* 699-707.
- Kaur-Sawhney, R., Adams, W.R., Tsang, J. and Galston, A.W. (1977) Leaf pretreatment with senescence retardants as a basis for oat protoplast improvement. *Plant and Cell Physiol.* 18, 1309-1317.
- Kaur-Sawhney, R., Altman, A. and Galston, A.W. (1978) Dual mechanism in polyamine - mediated control of ribonuclease activity in oat leaf protoplasts. *Plant Physiol.* 62, 158-160.
- Kaur-Sawhney, R. and Galston, A.W. (1979) Interaction of polyamines and light on biochemical processes involved in leaf senescence. *Plant, Cell. Environment.* 2, 189-196.
- Kaur-Sawhney, R., Flores, H.E. and Galston, A.W. (1980) Polyamine induced DNA synthesis and mitosis in oat leaf protoplasts. *Plant Physiol.* 65, 368-371.
- Kaur-Sawhney, R. and Galston, A.W. (1981) On the physiological significance of polyamines in higher plants. *Recent developments in plant sciences.* 129-144.
- Kaur-Sawhney, R., Flores, H.E. and Galston, A.W. (1981) Polyamine oxidase in oat leaves : A cell wall localized enzyme. *Plant Physiol.* 68, 494-498.
- Kaur-Sawhney, R., Shih, L.m. and Galston, A.W. (1982a) Relation ~~to~~ of polyamine synthesis and titer to ageing and senescence in oat leaves. *Plant Physiol.* 69, 405-410.

- Kaur-Sawhney, R., Shih, L.m. and Galston, A.W. (1982b)
Relation of polyamine biosynthesis in the initiation of sprouting in potato tubers. *Plant Physiol.* 69, 411-415.
- Kaur-Sawhney, R., Shih, L.m., Cegielska, T. and Galston, A.W. (1982c) Inhibition of protease activity by polyamines. Relevance for control of leaf senescence. *FEBS Lett.* 145, 345-349.
- Keniston, R.C. (1979) Polyamine, Pyridoxal 5'-phosphate interaction. Effects of pH and phosphate concentration on Schiff's base formation. *Physiol. Chem. Phys.* 11, 465-470.
- Khokhlovq, V.V. (1979) Effect of gibberellin on black currant seed germination. *Fiziol. Biochem. Kult. Rust.* 11, 605-610.
- Kim, K. and Tchen, T.T. (1962) Putrescine - α - Ketoglutarate transaminase. *Biochem. Biophys. Res. Commun.* 9, 99-104.
- Knauf, P.A. and Rothstein, A. (1971) Chemical modification of membranes I Effects of sulfhydryl and amino reactive reagents on anion and cation permeability of the human red blood cell. *J. Gen. Physiol.* 58, 190-210.
- Knowles, A., Kandrach, A., Racker, E. and Khorana, H. (1975) Acetylphosphatidylethanolamine in the reconstitution of ion pumps. *J. Biol. Chem.* 250, 1809.
- Kossorotow, A., Wolf, H.U., and Seiler, N. (1974) Regulatory effects of polyamines on membrane-bound acetylcholinesterase. *Biochem. J.* 144, 21-27.
- Krupa, Z. and Baszynski, T. (1975) Requirement of galactolipids for photosystem I. Activity in lyophilized spinach chloroplasts. *Biochim. Biophys. Acta.* 408, 26-34.
- Kuiper, D. and Kuiper, P.J.C. (1979) Calcium and magnesium ion stimulated ATPase from roots of *Plantago major* and *Plantago maritima*. Responses to alterations of the level of mineral nutrition and ecological significance. *Physiol. Plant.* 45, 1-6.

- Kuttan, R., Radhakrishnan, A.N., Spande, T. and Witkop, B. (1971) Sym-Homospermidine, a naturally occurring polyamine. *Biochemistry* 10, 361-365.
- Kylin, A. and Gee, R. (1970) Adenosine triphosphatase activities in the leaves of the mangrove *Avicennia nitida* Jacq. Influence of sodium to potassium ratios and salt concentrations. *Plant Physiol.* 45, 169-172.
- Lai, Y.F. and Thompson, J.E. (1971) The participation and properties of an isolated plant membrane fraction enriched in (Na^+ - K^+) stimulated ATPase. *Biochim. Biophys. Acta.* 233, 84-90.
- Lee, K.C., Cunningham, B.A., Paulsen, G.M., Liang, G.H. and Moore, R.B. (1976) Effects of cadmium on respiration rate and activities of several enzymes in soy bean seedlings. *Physiol. Plant.* 36, 4-6.
- Legrand, B. and Dubois, J. (1978) Effect of growth regulators on proliferation, peroxidase activity and isoperoxidases in cell suspension of *Sinapis alba*. *Biol. Plant.* 20, 107-113.
- Leonard, R.T. and Hotchkiss, C.W. (1976) Cation stimulated adenosine triphosphatase activity and cation transport in corn roots. *Plant Physiol.* 58, 331-335.
- Le Rudulier, D. and Goas, G. (1971) Miscen evidence et dosage de quelques amines dans les plantules de soja hispida monch. Privees de leurs cotyledons et cultivees en presence de nitrates divree et de chlorure d'ammonium. *CR Acad Sci. (Paris) Ser D.* 27, 1108.
- Le Rudulier, D. and Goas, G. (1979) Contribution a l'etude de l'accumulation de putrescine chez des plants cultivees en nutrition strictment ammoniacale. *CR Acad Sci. (Paris) Ser D.* 288, 1387.
- Levitt, J. (1972) In 'Responses of Plants to Environmental stresses' p. 189, Academic Press, New York.
- Ling Cheng, J., Dong, H.Z. and Sun, L.H. (1981) Ultra structural localization of adenosine triphosphatase activity in cotyledon cells of tomato and its changes during chilling stress. *Chih Wu Hsuch Pao*, 23, 257-261.

- Linskens, H.F., Kochuyt, A.S.L. and SO, A. (1968) Regulation der Nucleinsäuren synthese durch polyamine in keimendem pollen von petunia. *Planta*. 82, 111-122.
- Lippincott, J.A., Lippincott, B.B. and Chang, C.C. (1972) Promotion of crown gall tumour growth by lycopine, octopine, nopaline and carnosine. *Plant Physiol.* 49, 133-137.
- List, P.H. and Wagner, K. (1963) Ustilagin and andere inhaltsstoffe des maisfrankens, *Ustilago maydis corda*. *Arzneim Forsch.* 13, 36-41.
- Lotti, G. and Galoppini, C. (1961) Inactivation of plant peroxidases by cysteine, hydrazine and hydroxylamine. *Agrochemica*. 6, 21-24.
- Luttge, U. and Higinbotham, N. (1979) In 'Transport in Plants' (Springer-Verlag, New York). 107-119.
- Lyons, J.M. and Pratt, H.K. (1964) An effect of ethylene on swelling of isolated mitochondria. *Arch. Biochem. Biophys.* 104, 318-324.
- Mackenzie, J.M., Briggs, W.R. and Pratt, H. (1978) Intracellular phytochrome distribution as a function of its molecular form and of its destruction. *Am. J. Bot.* 65, 671-676.
- Macnicol, P.K. (1966) Peroxidase of alaska pea (*Pisum sativum*) enzyme properties and distribution within the plant. *Arch. Biochem. Biophys.* 117, 347-356.
- Marcus, A. (1960) Photocontrol of formation of red kidney bean leaf triphosphopyridine nucleotide - linked triose phosphate dehydrogenase. *Plant Physiol.* 35, 126-128.
- Marre, E. (1978) Membrane activities as regulating factors for plant cell functions. *Biol. Cell.* 32, 19-24.
- Matsuda, H. and Suzuki, Y. (1981) Purification and properties of the diamine oxidase from *Vicia faba* leaves. *Pl. Cell Physiol.* Tokyo. 22, 737-746.
- Matsumoto, H. and Kawasaki, T. (1981) Changes of membrane associated magnesium (2^{+}) ion activated ATPase of cucumber roots during calcium starvation. *Physiol. Plant.* 52, 442-448.

- Matsumoto, M. and Mori, A. (1976) Effects of guanidino compounds on rabbit brain microsomal sodium potassium ATPase activity. *J. Neurochem.* 27, 635-636.
- Matto, A.K. and Leberman. (1977) Localization of ethylene synthesizing system in apple tissue *Plant Physiol.* 60, 794-799.
- Matto, A.K., Fucrs, Y. and Chalutz, E. (1981) Regulatory aspects of ethylene biosynthesis in higher plants and microorganisms. *Israel. J. Bot.* 30, 55.
- Mayak, S. and Halevy, A.H. (1980) Flower senescence. In : 'Senescence in Plants'. (Thimann, K.V. ed.). CRC Press. 131-156.
- Mihich, E. (1963) Prevention of the antitumor activity of methylglyoxal bis (guanylhyazone) by spermidine. *Pharmacologist.* 5, 270-278.
- Mohr, H. (1966) Differential gene activation as a mode of action of phytochrome. *Phytochem. Photobiol.* 5, 469-482.
- Mohr, H. (1974) The role of phytochrome in controlling enzyme levels in plants. In MTP international review of science. Biochemistry series one vol.9. 37-82. Butterworths, London.
- Montague, M., Koppenbrink, J.W. and Jaworski, E. (1978) Polyamine metabolism in embryonic cells of *Daucus carota*. I changes in intracellular content and rates of synthesis. *Plant Physiol.* 62, 430-433.
- Montague, M., Armstrong, A. and Jaworski, E. (1979) Polyamine metabolism in embryonic cells of *Daucus carota* II. Changes in arginine decarboxylase activity. *Plant Physiol.* 63, 341-345.
- Moruzzi, G. and Caldarera, C.M. (1964) Occurrence of polyamines in the germs of cereals. *Arch. Biochem. Biophys.* 105, 209-210.

- Mottely, J. (1978) Studies on the modes of action of n-alkylguanidines and triorganotins on photosynthetic energy conversion in pea and the unicellular alga *Chlamydomonas reinhardi*. *Pestic Biochem Physiol.* 9, 340-350.
- Mukherjee, S. and Gupta, B.D. (1972) Characterization of copper toxicity in lettuce seedlings. *Physiol. Plant* 27, 126-129.
- Mukhopadhyay, A, Choudhury, M.M., Sen, K. and Gosh, B. (1983) Changes in polyamine and related enzymes with loss of viability in rice seeds. *Phytochemistry.* 22, 1547-1551.
- Nadler, K.D. and Wu, C.H. (1974) Plastid membrane activity during greening. Part. *Acta. Biol. Ser. A.* 14, 165-178.
- Nag Pratima, Paul, A.K. and Mukherjee, S. (1981) Heavy metal effects in plant tissues involving chlorophyll, chlorophyllase, Hill reaction and gel-electrophoretic patterns of soluble proteins. *Ind. J. Exp. Biol.* 19, 702-706.
- Naik, B.I., Mehta, K.K. and Srivastava, S.K. (1976) Changes in polyamine levels on infection of plants by *Cuscuta reflexa*. *Indian J. Biochem. Biophys.* 13, 306-307.
- Naik, B.I. and Srivastava, S.K. (1978) Effect of polyamines on tissue permeability. *phytochemistry.* 17, 1885-1887.
- Naik, B.I., Sharma, V. and Srivastava, S.K. (1980) Interaction between growth regulators and polyamine effects on membrane permeability. *Phytochemistry.* 19, 1321-1322.
- Naik, B.I. and Srivastava, S.K. (1981) Role of sulfhydryl groups and polyamines in controlling tissue permeability. *Indian J. Exp. Biol.* 19, 479-480.
- Naik, B.I., Goswami, R.G. and Srivastava, S.K. (1981) A rapid and sensitive colorimetric assay of amine oxidase. *Anal. Biochem.* 111, 146-148.
- Nezgovorova, L.A. and Borisova, N.N. (1967) Trigger mechanism of germinating seeds. III. Effect of diamines on germinating seeds. *Fiziologia Rast.* 14, 644-651.

- Nikolaeva, M.G. and Jankelevich, B.B. (1976) The influence of phytohormones on the growth and peroxidase activity of apple embryos. *Fruit Sci. Rep.* 3, 1-4.
- Nordlie, R.C., Johnson, T.W., Cornatzer, Jr. W.E. and Twedell, G.W. (1979) Stimulation by polyamines of carbamyl phosphate : Glucose phosphotransferase and glucose-6-phosphate phosphohydrolase activities of multifunctional glucose-6-phosphatase. *Biochim. Biophys. Acta.* 585; 12-23.
- Nowokowski, T.Z. and Byers, M. (1972) Effect of nitrogen and potassium fertilizers on contents of carbohydrates and free amino acids in Italian rye grass. *J. Sci. Food-Agric.* 23, 1313-1318.
- Odawara, S., Watanabe, A. and Imaskei, H. (1977) Involvement of cellular membrane in regulation of ethylene production. *Plant Cell Physiol.* 13, 569-575.
- Okii, M., Onitake, T., Kawai, M., Takematsu, T. and Konnai, M. (1980) Method for protecting crops from suffering damage. U.S. Patent. 4, 231-789.
- Packer, L., Deamer, D.W. and Heath, R.L. (1967) Regulation and deterioration of structures in membranes In 'Advances in Gerontological Research' Vol.2. (B.L. Strehler. Ed.). 77-120. Academic Press Inc., New York.
- Palavan, N. and Galston, A.W. (1982) Polyamine biosynthesis and titer during various developmental stages of *Phaseolus vulgaris*. *Physiol. Plant.* 55, 438-444.
- Parida, R.K. and Mishra, D. (1980) Acid phosphatase and adenosine triphosphatase activities during rice leaf development and senescence. *Photosynthetica.* 14, 431-436.
- Parrish, D.J. and Leopold, C.A. (1978) On the mechanism of ageing in soyabean seeds. *Plant Physiol.* 61, 365-368.
- Pecket, R.C. and Bassim, T.A.H. (1974a), Mechanism of phytochrome action in the control of biosynthesis of anthocyanin in *Brassica oleracea*. *Phytochemistry* 13, 815-821.

- Pecket, R.C. and Bassim, T.A.H. (1974b). The effect of kinetin in relation to photocontrol of anthocyanin biosynthesis in *Brassica oleracea*. *Phytochemistry* 13, 1395-1399.
- Penel, C. and Greppin, H. (1975) Photocontrôle immédiat de l'activité peroxidase et corrélation entre les feuilles de l'épinard. *Saussurea*. 6, 287-291.
- Penel, C., Karege, F. and Greppin, H. (1980) Correlations rapides au niveau des feuilles de l'épinard xleme. *Rencontre de Meribel*. 281-283.
- Peter, H.W., Wolf, H.U. and Seiler, N. (1973) Influence of polyamines on two bivalent cation activated ATPases. *Hoppe-Seyler's Z. Physiol. Chem.* 354, 1146.
- Peter, H.W., Gies, A., Neumeier, M., Schoedler, R. and Wegener, I. (1979) Influence of the naturally occurring polyamines, spermine, spermidine and putrescine on the kinetic properties of acetyl cholinesterase. Comparative studies with the acetyl choline-esterases from the central nervous system of *Manduca sexta* and of the synaptic plasma membrane of rat brain. *Gen Pharmacol.* 10, 133-141.
- Peter, H.W., Pinheiro, M.R. and Silva Lima, M. (1981) Regulation of the F_1 -ATPase from mitochondria of *Vigna sinensis* (L) *soyicu pitiaba* by spermine, spermidine, putrescine, Mg^{2+} , Na^+ and K^+ . *Can. J. Biochem.* 59, 60-66.
- Poovaiah, B.W., Vest, G. and Ramussen, H.P. (1972) Peroxidase activity in onion bulbs of long and short dormancy. *HortSci.* 7, 553-554.
- Poovaiah, B.W. and Leopold, A.L. (1973) Deferral of leaf senescence with calcium. *Plant Physiol.* 52, 236-239.
- Popovic, R.B., Kyle, D.J., Cohen, A.S. and Zalik, S. (1979) Stabilization of thylakoid membranes by spermine during stress - induced senescence of barley leaf discs. *Plant Physiol.* 64, 721-726.
- Poux, M. (1969) Localisation of activities enzymatiques dans les cellules de meristème racinaire de cucumis

- sativus* L. activate peroxydasique. J. Microscopie, 8, 855-866.
- Priebe, A., Klein, H. and Jager, H.J. (1978) Role of polyamines in SO₂ - polluted pea plants. J. Exp. Bot. 52, 1035-1048.
- Ram, C., Balasimha, D. and Tewari, M.N. (1976) Effect of gibberellic acid and auxins on growth sulfhydryl content and peroxidase activity in *Phaseolus radiatus* L. seedlings. Plant Biochem. J. 3, 128-133.
- Ramakrishna, S. and Adiga, P.R. (1974) Amine biosynthesis in *Lathyrus sativus* seedlings. Phytochemistry 13, 2161-2166.
- Ramakrishna, S. and Adiga, P.R. (1975a) Arginine decarboxylase from *Lathyrus sativus* seedlings. Eur. J. Biochem. 59, 377-386.
- Ramakrishna, S. and Adiga, P.R. (1975b) Amine levels in *Lathyrus sativus* seedlings during development. Phytochemistry 14, 63-68.
- Ranadive, A.S. and Haard, N.F. (1972) Peroxidase localization and lignin formation in developing pear fruit. J. Food Sci. 37, 381-383.
- Ray, K. and Biswas, B.B. (1980) Possible origin of multiple IAA-oxidase and peroxidase activities in germinating *Avena*. Indian. J. Exp. Biol. 18, 1474-1477.
- Reinbothe, H. and Mothes, K. (1962) Urea, ureides and guanidines in plants. Ann. Rev. Plant Physiol. 13, 129-150.
- Reuter, G., Barthel, A. and Steinige, (1969). Metabolism of guanidino acetic acid in *Galega officinalis*, I. Pharmazie, 24, 358.
- Rhodes, J.M., Wooltorton, L.S.C. (1978) The biosynthesis of phenolic compounds in wounded plant storage tissues. In 'Biochemistry of wounded Plant tissues'. (Kahl G.Ed.) W. de Gruyter & Co. p. 243-286.
- Rich, P.R., Boveris, A., Bonner, W.D. and Moore, A.L. (1976) Hydrogen peroxide generation by the alternate oxidase of higher plants. Biochem. Biophys. Res. Comm. 71, 695-703.

- Riedel, B. and Christensen, G. (1979) Effect of selected water toxicants and other chemicals upon adenosine triphosphatase activity in vitro. Bull. Environ. Contam. Toxicol. 23, 365-368.
- Roberts, H.E. (1973) In seed ecology (Hendecker, W. Ed.). 189-218. Butterworth, London.
- Robert, T., Geng, S., Robert, B.L. (1979) Analysis of the distribution of potassium stimulated adenosine triphosphatase activity in soyabean root. Plant Physiol. 63, 1187-1190.
- Rubin, B.A. and Ivanova, T.M. (1963) On the oxidase function of plant peroxidase. Life Sci. 4, 281-289.
- Rungie, J.M. and Wiskich, J.T. (1973) Salt stimulated adenosine triphosphatase from smooth microsomes of turnip. Plant Physiol. 51, 1064-1068.
- Sacher, J.A. (1973) Senescence and post-harvest physiology. Ann.Rev. Plant. Physiol. 24, 197-224.
- Sagiv, J. and Bar-Akiva, A. (1972) Visual demonstration of differences in peroxidase activity in iron and manganese deficient citrus leaves. Experientia. 28, 645-646.
- Sakai, T.T. and Cohen, S.S. (1976) Effect of polyamines on structure and reactivity of tRNA. Prog. Nucleic Acid Res. (Mol.Biol) 17, 15-42.
- Scherer, G.F.E. and Morre, D.J. (1978) In vitro stimulation by 2,4-dichlorophenoxy acetic acid of an ATPase and inhibition of phosphotide phosphatase of plant membranes. Biochem. Biophys. Res. Comm. 84, 238-247.
- Scherer, G.F.E. (1981) Auxin stimulated ATPase in membrane fractions from pumpkin hypocotyls (Cucurbita maxima). Plants. 151, 434-438.
- Schopfer, P. and Plachy, C. (1973) Die organspezifische photodetermination der Entwicklung Von Peroxydaseaktivitat in senfkeimling (Sinapis alba) durch Phytochrom. I. Kinetische analyse. Z. Naturforsch, 28, 296-301.

- Schopfer, P. (1977) Phytochrome control of enzymes. *Ann. Rev. Plant Physiol.* 28, 223-252.
- Sen, K., Chaudhuri, M.M. and Gosh, B. (1981) Changes in polyamine contents during development and germination of rice seeds. *Phytochemistry* 20, 631-633.
- Sengupta, T., Ghosh, B., Sircar, S.M. (1977) Effect of growth substances on IAA oxidase-peroxidase activity during seed germination of rice (*Oryza sativa* L.). *Plant Biochem. J.* 4, 28-33.
- Serlin, B.S., Sopory, S.K. and Roux, S.J. (1984) Modulation of oat mitochondrial ATPase activity by Ca^{2+} and phytochrome. *Plant Physiol.* 74, 827-833.
- Shanon, L.M., Kay, E. and Lew, J.Y. (1966) Peroxidase isoenzymes from Horse-radish roots. *J. Biol. Chem.* 241, 2166-2172.
- Sharma, R., Sopory, S.K. and Guha-Mukherjee, S. (1976) Phytochrome regulation of peroxidase activity in maize. *Plant Sci. Lett.* 6, 69-75.
- Sharma, R., Sopory, S.K. and Guha-Mukherjee, S. (1977) Phytochrome regulation of peroxidase activity in maize II. interactions with hormones acetylcholine and c-AMP. *Z. Pflanzenphysiol.* 82, 417-427.
- Sharma, R., Sopory, S.K. and Guha-Mukherjee, S. (1979b) Phytochrome regulation of peroxidase activity in maize III. Age dependence and subcellular localization. *Z. Pflanzenphysiol.* 94, 371-375.
- Sharma, R., Sopory, S.K. and Guha-Mukherjee, S. (1979a) Phytochrome regulation of peroxidase activity in maize. IV. Photosynthetic independence of peroxidase enhancement. *Plant, Cell Physiol.* 20, 1003-1012.
- Shibaoka, H. and Thimann, K.V. (1970) Antagonism between kinetin and amino acid experiments on mode of action of cytokinins. *Plant Physiol.* 46, 212-220.
- Shih, L.M., Kaur-Sawhney, R., Fuhrer, J., Samanta, S. and Galston, A.W. (1982) Effects of exogenous 1,3-diaminopropane and spermidine on senescence of oat leaves. I.

- inhibition of protease activity, ethylene production and chlorophyll loss as related to polyamine content. *Plant Physiol.* 70, 1592-1596.
- Shropshire, W. Jr. and Mohr, H. (1982) In 'Encyclopedia of plant physiology New Series' Vol. on photomorphogenesis. Springer Verlag, Berlin.
- Siegel, S., Giunarro, C. and Daly, O. (1966) Micro-aerobic capabilities in land plants : observations on survival and growth of plants submerged in fresh and saline waters. *Nature* 209, 1330-1334.
- Simons, T.J. and Ross, A.F. (1971) Metabolic changes associated with systemic induced resistance to tobacco mosaic virus in samsun N.N. tobacco. *Phytopathol.* 61, 1261-1265.
- Smith, H. (1970) Phytochrome and photomorphogenesis in plants. *Nature (London)* 227, 665-668.
- Smith, H. (1974) The Biochemistry of photomorphogenesis In: 'MTP international review of science Biochemistry series one' Vol.II. 159-198, Butterworths, London.
- Smith, H. (1975) 'Phytochrome and photomorphogenesis.' McGraw-Hill, London.
- Smith, H. (1976) 'Light and plant development' Butterworths, London.
- Smith, T.A. (1965) N-Carbamyl putrescine amidohydrolase of higher plants and its relation to potassium nutrition. *Phytochemistry.* 4, 599-607.
- Smith, T.A. (1971) The occurrence, metabolism and function of amines in plants. *Biol. Rev.* 46, 201-241.
- Smith, T.A. (1972) The physiology of the polyamines and related compounds. *Endeavour* 31, 22-28.
- Smith, T.A. (1973) Amine levels in mineral-deficient *Hordeum vulgare* leaves. *Phytochemistry* 12, 2093-2100.
- Smith, T.A. (1977a) Recent advances in the biochemistry of plant amines. In: 'Progress in phytochemistry' (Reinhold, L., Harborne, J.B., Swain, T. (Eds.)). Vol.4, 27-82.

- Smith, T.A. (1977b) Homospermidine in Rhizobium and legume root nodules. *Phytochemistry* 16, 278-279.
- Smith, T.A. and Best, G.R. (1977) Polyamines in Barley seedlings. *Phytochemistry* 16, 841-844.
- Smith, T.A. and Best, G.R. (1978) Distribution of the Hordatines in barley. *Phytochemistry* 17, 1093-1098.
- Smith, T.A., Best, G.R., Abbot, A.J. and Clements, E.D. (1978) Polyamines in paul's scarlet rose suspension culture. *Planta* 144, 63-68.
- Smith, T.A. (1979) Arginine decarboxylase of oat seedlings. *Phytochemistry* 18, 1447-1452.
- Smith, T.A. (1980) Plant amines. In 'Encyclopedia of plant physiology, New Series.' (Eds. Bell, E.A. and Charlwood) Vol.8. pp. 433-460. Springer-Verlag, Berlin.
- Smith, T.A. (1981) In 'The Biochemistry of plants.' (Eds. E.E. Conn and P.K. Stumpf) Vol.7. pp. 249-268. Academic Press, New York, London.
- Smith, T.A. (1982) The function and metabolism of polyamines in higher plants. In 'Plant growth substances.' (P.F. Waring Ed.) 463-472. Academic Press, London, New York.
- Srivastava, S.K., Raj, A.D.S. and Naik, B.I. (1981) Polyamine metabolism during ageing and senescence of pea leaves. *Indian J. Exp. Biol.* 19, 437-440.
- Srivastava, S.K. and Smith, T.A. (1982a) Effect of some oligo-amines and guanidines on membrane permeability in higher plants. *Phytochemistry* 21, 997-1008.
- Srivastava, S.K. and Smith, T.A. (1982b) The inhibition of growth in higher plants by a homologous series of guanidines and its reversal by spermine. *Ann. Bot.* 50, 265-275.
- Srivastava, S.K., Vashi, D.J. and Naik, B.I. (1983) Control of senescence by polyamines and guanidines in young and mature barley leaves. *Phytochemistry* 22, 2151-2154.

- Stahmann, M.A. and Demorest, D.M. (1972) Changes in isoenzymes of host and pathogen following some fungal infections. *Sym. Biol. Hung.* 13, 355-365.
- Stevens, H.C., Calvin, M., Lee, K.C., Siegel, B.Z. and Siegel, S.M. (1978) Peroxidase activity as a screening parameter for salt stress in Brassica species. *Phytochemistry* 17, 1521-1522.
- Stevens, L. (1970) Biochemical role of naturally occurring polyamines in nucleic acid synthesis. *Biol. Rev.* 45, 1-27.
- Stom, D., and Rogozine, N.A. (1976) Possible mechanism of action of quinone pesticides on the protoplasmic streaming in marine plants. *Eksp. Vodn. Toksik.* 6, 111-118.
- Stout, E.R. and Mans, R.J. (1967) Partial purification and properties of RNA polymerase from maize. *Biochem. Biophys. Acta.* 134, 327-336.
- Strotmann, H. and Schumann, J. (1983) Structure, function and regulation of chloroplast ATPase. *Physiol. Plant.* 57, 375-382.
- Suresh, M.R. and Adiga, P.R. (1977) Putrescine sensitive (artificial) and ~~x~~ insensitive (biosynthetic) S-adenosyl-L-methionine decarboxylase activities of Lathyrus sativus seedlings. *Eur. J. Biochem.* 79, 511-518.
- Suresh, M.R., Ramakrishna, S. and Adiga, P.R. (1978) Regulation of arginine decarboxylase and putrescine levels in Cucumis sativus cotyledons. *Phytochemistry* 17, 57-63.
- Suttle, J.C. (1981) Effect of polyamines on ethylene production. *Phytochemistry* 20, 1477-1480.
- Szymczak, J. and Marian, C. (1980) Effect of fungicides on ascarbase and peroxidase activity in poppy seedlings. *Herbae. Pol.* 26, 73-76.
- Tabor, C.W. and Tabor, H. (1976) 1,4-diaminobutane (Putrescine) spermidine and spermine. *Ann. Rev. Biochem.* 45, 285-306.

- Tabor, H., Tabor, C.W. and Rasenthal, S.M. (1961) The biochemistry of the polyamines : spermidine and spermine. *Ann.Rev. Biochem.* 30, 579-604.
- Tabor, H. and Tabor, C.W. (1964) Spermidine, spermine and related amines. *Pharmacol. Rev.* 16, 245-300.
- Taburi, F., Scarponi, L., Perucci, P. and Giusquiani, P.L.(1981) Influence of some 1,3,5-triazine herbicides on peroxidase activity in corn seedlings. *Pestic Sci.* 12, 449-454.
- Tao-Kar ling and Khan, A.A. (1975) Occurrence of some enzymes in starchy endosperm and hormonal regulation of isoperoxidase in aluerone of wheat. *Plant Physiol.* 56, 797-800.
- Tashima, J., Hasegawa, M. and Mizunuma, H. (1978) Activation of $\text{Na}^+ - \text{K}^+$ adenosine triphosphatase by spermine. *Biochem. Biophys. Res. Commun.* 82, 13-18.
- Thevenot, C., Gasper, Th., Lewak, S. and Come, D. (1977) Peroxidases in relation to removal of dormancy and germination of apple embryos. *Physiol. Plant.* 40, 82-86.
- Thimann, K.V. (1980) 'Senescence in plants'. (Thimann, K.V. ed.). CRC Press, Boca Raton, Florida.
- Thomas, R.L. and Delincee, H. (1979) Effect of gamma irradiation on peroxidase isoenzymes during suberization of wounded potato tubers. *Phytochem.* 18, 917-921.
- Thorpe, T.A., Trans Than, Van, M. and Gaspar, Th. (1981) Isoperoxidases in epidermal layers of tobacco and changes during organ formation in vitro. *Physiol. Plant.* 44, 388-394.
- Tomomatsu, H., Morita, N., Nagai, T., Shiwako, Y., Ichiki, T. and Yunoki, K. (1975) Antitumor activities of poly-guanidino compounds screening test and biological and biochemical activities. *Acta Medica Univ. Kagoshima.* 17, 99-111.

- Torrigiani, P. and Fracassini, D.S. (1979) Early DNA synthesis and polyamines in mitochondria from activated parenchyma of *Helianthus tuberosus*. *Z. Pflanzphysiol.* 97, 353-359.
- Umezū, M. (1970) On quantitative changes of amino acids and amines in sake brewing VIII on the formation and consumption of amines by sake yeast. *Hakko Kogakō Zōshi*, 48, 103-109.
- Van Fleet, D.S. (1959) Analysis of the histochemical localization of peroxidase related to the differentiation of plant tissues. *Can. J. Bot.* 37, 449-458.
- Van Huystee, R.B. (1968) Effect of massive x-irradiation on proteins and protein synthesis in peanut cotyledons. *Can. J. Biochem.* 46, 685-689.
- Vance, C.P., Kirk, T.K. and Sherwood, R.T. (1980) Lignification as a mechanism of disease resistance. *Ann. Rev. Phytopathol.* 18, 259-288.
- Veltrup, W. (1981) Effect of heavy metals on the (activity of) ATPases. *Ber. Dtsch. Bot. Ges.* 93, 659-666.
- Vendrell, M. (1968) Reversion of senescence : Effects of 2,4-dichloro-phenoxyacetic acid and indole acetic acid on respiration, ethylene production and ripening of banana fruit slices. *Aust. J. Biol. Sci.* 22, 601-610.
- Venere, R.J. (1980) Role of peroxidase in cotton resistant to bacterial blight. *Plantsci. lett.* 20, 47-56.
- Verbelen, J.P., Pratt, H., Butler, W. and Tokuyasu, K. (1982) Localization of phytochrome in oats by electron microscopy. *Plant Physiol.* 70, 867-871.
- Villanvera, V.R., Adlakha, R.C. and Contera-soler, A.M. (1978) Changes in polyamine concentration during seed germination. *Phytochemistry* 17, 1245-1249.
- Von Abrams, G.J. (1974) An effect of ornithine on degradation of chlorophyll and protein in excised leaf tissue. *Z. Pflanzenphysiol.* 72, 410-421.
- Wahid, M. (1980) Effect of gamma irradiation and storage on the catalase and peroxidase activities of mushrooms. *Lebensum. Wissensch Technol.* 13, 291-292.

- Watson, M.C., Bartels, P.G. and Hamilton, K.C. (1980) Action of selected herbicides and Tween 20 on oat (*Avena sativa*) membranes. *Weed Sci.* 28, 122-127.
- Watson, P.J. and Smith, H. (1982) Integral association of phytochrome with a membrane fraction from etiolated *Avena* shoots : red/far-red photoreversibility and in vitro characterization. *Planta*, 154, 121-127.
- Wheeler, H., Humphreys, T. and Aldrich, H. (1979) Localization of a phosphatase (ATPase) on the plasmalemma of maize scutellum. *Phytochemistry* 18, 549-554.
- Whitelam, G.C. and Johnson, C.B. (1981) Membrane permeability changes : A component of phytochrome-mediated anthocyanin synthesis in *Sinapis alba*. *Phytochemistry* 20, 9-11.
- Wilson, M.T. and Wong, E. (1976) Peroxidase catalyzed oxygenation of 4,2,4-trihydroxychalcone. *Phytochemistry* 15, 1333-1341.
- Yanagisawa, H. and Suzuki, Y. (1981) Corn agmatine iminohydrolase. Purification and properties. *Plant Physiol.* 67, 697-700.
- Young, N.D. and Galston, A.W. (1983) Putrescine and acid stress: Induction of agmatine decarboxylase activity and putrescine accumulation by low pH. *Plant Physiol.* 71, 767-771.
- Yu, Y.B., Adams, D.O. and Yang, S.F. (1979) 1-Aminocyclopropane-1-carboxylate synthase a key enzyme in ethylene biosynthesis. *Arch. Biochem. Biophys.* 198, 280-286.
- Zhurkin, V.B., Lysov, Yu, P. and Ivanov, V.I. (1980) Interaction of spermine with different forms of DNA conformational study. *Biopolymers* 19, 1415-1434.