CURRICULUM VITAE

N. BHUSHAN MANDAVA

Presently -

President, Mandava Associates (1986 - Present)

Mandava Associates is a firm providing consulting services in pesticides; food additives; toxic substances; pharmaceuticals; toxicology; environmental and risk assessment; chemical regulatory compliance; and litigation support for chemical tort, product liability, and hazardous wastes. It is also involved in marketing of pesticides; commercial chemicals; pharmaceuticals; health care and other consumer products. It Furthermore, it is involved in environmental and health assessments; management and compliance audits for national and international bodies and private companies.

Dr. Mandava's areas of special expertise include product approvals and product markets for pesticides, foods, drugs and biotechnology products; environmental assessments in support of regulated products, residential and sites, and facilities; new product development and market analysis; product, residue and environmental chemistry; biochemistry; plant and animal physiology and metabolism; hazard, exposure and risk assessment; advise and assist clients (national and international) in regulatory matters and health and safety issues; provide litigation support for chemical torts; product liability; hazardous wastes; and right-to-know laws.

Previously -

Senior Science Advisor, Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency, Washington, DC (1982 - 1984)

Responsible for coordinating research and development programs for the Office of Pesticide Programs (OPP) and the Office of Toxic Substances (OTS) with the Office of Research and Development (ORD). Assisted the Assistant Administrator (AA) on science policies, issues and regulations. Represented AA at intra- and interagency meetings of the senior staff and served as liaison with the Agency's program offices including ORD and the Office of International Activities (OIA). Served as spokesman
for AA at AID, OSTP and OTA meetings on human health and environmental safety, and other environmental issues of toxic substances. Represented AA at committees/meetings of EPA and other Federal Agencies on newly developing technologies, and advised ORD and OIA on binational programs on toxic chemicals. Accomplished the senior management's goals, objectives and perspectives by providing sound advice on science and technology issues. Received superior/outstanding ratings for these accomplishments.

Product Manager, Registration Division, Office of Pesticide Programs, U.S. Environmental Protection Agency, Washington, DC (1984 - 1986)

Responsible for registration of pesticides; served as Division's technical authority on matters related to pesticide science; directed and coordinated several pesticide chemical projects with other program offices; and provided expert advice to EPA's scientists, senior management and outside groups. Represented EPA at other Agencies, professional societies and the regulated industry.

Director of Plant Growth Regulators and Herbicides Research Programs, U.S. Department of Agriculture, Beltsville, Maryland (1968 - 1982)

Directed and managed several research programs involving chemical and biological research on discovery and development of novel pesticides, and their effects on plants, animals, human health and the environment. Managed several research programs at national level with other USDA laboratories, other Federal Agencies, universities and industry. Directed a group of scientists, engineers and visiting scientists. Sponsored several international programs under PL-480 to promote agricultural research. Provided advice to senior management for developing strategies in agricultural research for pest control and food production technologies. Received several awards in recognition of program and scientific accomplishments, and won recognition as international authority in pesticide science as a result of outstanding contributions (see publications, patents and books).

Academic Teaching and Research Appointments at Laval University, Quebec, Canada; State University of New York, Stony Brook, New York; and Oklahoma State University, Stillwater, Oklahoma (1963 - 1968)

Taught special courses at graduate level in analytical and bio-organic chemistry. Directed research in foods, drugs, pesticides and natural toxins. Developed trace analytical methods utilizing spectroscopy and chromatography. Won peer recognition as authority in the above research areas as evidenced by publications and invited lectures at national meetings.

Visiting Scientist/Professor Appointments at Indian Institute of Science, Bangalore, India; Eastern Regional Research Center, USDA, Philadelphia, Pennsylvania; American University, Washington, DC (short term appointments during 1975 - 1986)

Taught advanced courses and conducted special seminars in: analytical applications to chemistry and biochemistry, pesticide, health and environmental sciences, and bio-organic chemistry. Developed collaborative research programs and directed graduate research in these areas.

Education

Ph.D., Chemistry	Indian Institute of Science, Bangalore, India, 1963
M.Sc., Chemistry	Banaras University, Varanasi, India, 1957
B.Sc., Chemistry	Andhra University, Waltair, India, 1955

Professional Certification

Certified Professional Chemist (CPC)
Regulatory Affairs Certified (RAC)

Professional Societies, Boards, Recognitions and Related Activities

Offices and Committee Assignments in Professional Societies

Councilor, American Chemical Society (1978 - 2004)

President-Elect, District of Columbia Institute of Chemists (1998 - 1999); President (2000-2001); Past President (2002-2003)

President-Elect (1983), President (1984), and Immediate Past President (1985), Chemical Society of Washington

Chairman, Long Range Planning Committee, Chemical Society of Washington (1985, 1994); Member (1990 - 1992; 1994 - 1996)

Chairman, Hillebrand Prize Committee, Chemical Society of Washington (1986; 1990; 1998 - 1999; 2001)

Chairman, Bylaws and Standing Rules Committee, Chemical Society of Washington (1979 - 1980; 1987 - 1989; 1996 - 1998)

Chairman, Awards Committee, Chemical Society of Washington (1995 - 1997)

Program Chairman, Chemical Society of Washington (1981 - 1982)

Member, Publications Committee, Chemical Society of Washington
(1981 - 1985; 1987 - 1989; 2000 - 2002), and Chairman (2003)

Member, Nominations Committee, Chemical Society of Washington
(1977 - 1980); Chairman (1989; 1999, 2001)

Member, Education Committee, Chemical Society of Washington (1977)

Member, Executive Committee, Chemical Society of Washington (1979 - 1986)
Member, Editorial Board, The Capital Chemist (1978 - 1981)

Manager, Board of Managers, Chemical Society of Washington (1976 - 1977)

Program Chairman, Fifteenth ACS-MARM Meeting (1981); General Chairman, Joint MARM-SERM Meeting (1992)

Member, ACS-MARM Nominating Committee (199; 1994; 1996-2003)

Associate, Committee on Chemical Safety and Health, American Chemical Society (1979 - 1982)

Associate, Committee on Environmental Improvement, American Chemical Society (1986)

Member, Committee on Professional Relations and Economic Status, American Chemical Society (1994; 1996; 2000-2003)

Member, Committee of the ACS Division of Professional Relations (1995-1996)
Director, District of Columbia Institute of Chemists (1995-1997)

Member, Committee on Bylaws and Standing Rules, American Institute of Chemists (1980 - 1992)

Member, ACS-MARM Steering Committee (1982 - 1999); Chairman-elect (1988); Chairman (1989 - 1990)

Alternate Member, SERMACS Steering Committee (1994-98)

Awards and Honors

DCIC Honor Scroll (1998)

Community Service Award (1995)

Gordon Memorial Award (1989)

Hillebrand Prize (1987)

USDA Superior Service Award (1984)

Research Publication Award from Naval Research Laboratory
(1980)

National Research Council - National Academy of Sciences Postdoctoral Research Associateship (1968 - 1970)

National Research Council of Canada Postdoctoral Fellowship (1966 - 1968)

CSIR Senior Research Fellowship (1962); GOI Research Scholar-ship (1957 - 1960); University Prize for best Ph.D. Dissertation (1962); College Prize for Highest Rank in B.S.(1955)

Invitational Lectures and Presentations *

Gordon research Conference on Biochemistry in Agriculture (1971); IUPAC Natural Products Symposium, New Delhi, India (1972); Eighth International Conference on Plant Growth Substances, Tokyo, Japan (1973); Second Plant Growth Regulators Symposium, Sofia, Bulgaria (1975); Ninth International Conference on Plant Growth Substances, Lausanne, Switzerland (1976); American Oil Chemists Society Symposium, St. Louis, MO (1978); and, IUPAC International Congress on Pesticide Chemistry, Kyoto, Japan (1982)

* List of Other Presentations after 1982 are Available on Request.

Advisory and Consulting Activities

Member, Committee (K 62) on Pest Control Chemicals, American National Standards Institute (1982 - 1986)

Member, Editorial Advisory Board, Journal of Liquid Chromatography (1982 - 1994)

Member, Editorial Advisory Board, Journal of the Regulatory Affairs Professional Society (1990-1995)

Editor, Seven Special Issues on Countercurrent Chromatography, Journal of Liquid Chromatography (1984 - 1997)

Editor-in-Chief, A Ten-Volume Handbook Series on Naturally Occurring Pesticides (1984 - 1992)

Consultant, Informatics (1969 - 1978); CRC Press (1978 - 1983)

Advisor to the Board of the American Biographical Institute (1988 -)

Thesis Advisor and External Examiner: Directed Students for 2 Ph.D and 4 M.S. Degrees (1966 - 1984); Served as Ph.D. Thesis Examiner to Calcutta University, India (1982-1998)

Peer Reviewer, Manuscripts from Several Scientific Journals; NRC (Canada), NSF and USDA Grant Proposals (1980 -)

Guest Scientist, National Institutes of Health (1987 -)

Visiting Scientist/Professor Appointments at USDA Eastern Regional Research Laboratory, Philadelphia, PA.; Southern Illinois University, Carbondale, IL.; American University, Washington, D.C.; Indian Institute of Science, Bangalore, India (1976-1986).

Advisor, Office of International Cooperation and Development (OICD), USDA to evaluate the pesticide programs under Public Law 480 including setting up of laboratory and field evaluations, pesticide residue monitoring, and establishing new programs in biotechnology and integrated pest management in developing countries (1978 - 1983).

Special Invitation from Government of India to evaluate the pesticide research at the Council of Scientific and Industrial Research (CSIR) to advise its Director-General (1986).

UNDP Consultant - Team Leader for Evaluation of:

i) Regional Project on Pesticides in Asia and the Pacific (1988) involving 10 countries

ii) Pesticide Development Project of India (1988)

iii) A Project on Biological Control of Agricultural Pests, Burma (1989)

iv) Regional Project on Pesticides in Asia and the Pacific (1997-1998) involving 15 countries

UNIDO Consultant for Evaluation of three UNDP-funded projects for production and utilization of agrochemicals and fertilizers in China (1995, 1997).

Biographical Listings

American Men and Woman of Science
International Scholars Directory
International Leaders in Achievement
Dictionary of International Biography
Who's Who (Southern and Eastern Regional Editions)
Who's Who in North America
Who's Who in Technology Today
Who's Who in Frontiers of Science and Technology
Notable Americans
Men of Achievement
Directory of Distinguished Americans
Community Leaders of America
International Leaders in Achievement
Personalities of America
International Book of Honor
Five Thousand Personalities of the World

Professional Society Memberships

Fellow, American Institute of Chemists
American Chemical Society
New York Academy of Sciences
International Union of Pure and Applied Chemistry
Washington Chromatography Discussion Group
Mass Spectrometry Discussion Group
Societies of Sigma Xi and Phi Lambda Upsilon
Society of Risk Analysis
Society of Environmental Toxicology and Chemistry
The Toxicology Forum
American Standards and Testing materials
Drug Information Association

Former Member of American Oil Chemists Society, International Plant Growth Regulators Society and American Association for Advancement of Science.

Publications

Published over 160 articles including research papers, review articles, book chapters, patents and books.

1. Bhargava, P.N. and N. Mandava. 3-β-Naphthyl-2:4-thiazolidiones and their derivatives. J. Ind. Chem. Soc. 34:776-778. 1957.

2. Bhargava, P. N. and N. Mandava. N-Substituted-2-aminothiazoles and their acetoxy mercuri derivatives. J. Ind. Chem. Soc 36:434-436. 1959.

3. Berlin, K.D. and N. Mandava. Condensation of catechol with phenylphosphorus dichloride. A novel ring cleavage reaction. J. Org. Chem. 29:2056-2057. 1964.

4. Berlin, K.D. and N. Mandava. Condensation of arenediols with phenylphosphonic dichloride. Am. Chem. Soc. Sectional Meeting, Oklahoma City, Oklahoma. (Abstr.) 1964.

5. Berlin, K.D. and N. Mandava. Studies with substituted 2-aryl-1,3,2-benzodioxaphosphole 2-oxides and related compounds. Organophosphorus chemistry symposium sponsored by the International Union of Pure and Applied Chemistry (IUPAC), Heidelberg, West Germany, May 20, 1964. (Presentation). 1964.

6. Berlin, K.D. and N. Mandava. Reaction of diphenyl phenylphosphonate with Grignard reagents. A convenient synthesis for the preparation of phosphine oxides. Chem. and Ind. 974-975. 1964.

7. Berlin, K.D., T.H. Austin, M. Peterson, and N. Mandava. Nucleophilic displacements in organophosphorus compounds by Grignard reagents. In Topics in Phosphorus Chemistry, I. Grayson and E.J. Griffith, ed., Interscience, New York, Vol. 1, p. 17-56. (Book Chapter). 1964.

8. Berlin, K.D. and N. Mandava. A study of the condensation of arenediols with phenylphosphonic dichloride. The stereochemistry or ring-opening in certain bicyclic phosphonates leading to substituted ω-hydroxyaryl hydrogen phenylphosphonates. Tetrahedron 20:2709-2716. 1964.

9. Berlin, K.D., D.M. Hellewege, and N. Mandava. Dialkyl esters of acylphosphonic acids. J. Org. Chem. 30:1265-1267. 1965.

10. Berlin, K.D., T.H. Austin, and N. Mandava. A convenient synthesis of esters of diphenylphosphonic acid III. J. Org. Chem. 30: 1267-1268.

11. Berlin, K.D. and N. Mandava. Proton resonance frequencies in several organophosphorus acids. Okla. Acad. Sci. 45:111115. 1965.

12. Berlin, K.D., T.H. Austin, N. Mandava, and D. Hopper. Gas chromatographic analyses of organophosphorus compounds. J. Gas Chromatogr. 256-259. 1965.

13. Berlin, K.D., D.M. Hellwege, N. Mandava, and E. T. Gaudy. Evidence of stereospecific Michaelis-Arbuzov rearrangement in 4-t-butyl-cyclohexyl dephenylphosphinite. Tetrahedron 22:2191-2201. 1966.

14. Mandava, N. and G. Fodor. A new condensed azetidine ring system: Azabicyclo [3.2.1]nonane. 50th Canadian Chemical Conference. The Chemical Institute of Canada, Toronto, June 5-7, 1967, Handbook, p. 81. (Abstr.) 1967.

15. Fodor, G. and N. Mandava. Quaternization of tropanes. A quantitative study (in French). French Canadian Association for Advancement of Science. Annales de L'ACFAS, Supplement 1, 34:63 (Abstr.). 1967.

16. Mandava, N. and G. Fodor. A detailed investigation of N-quaternization in tropanes. 51st Canadian Chemical Conference of the Chemical Institute of Canada, Vancouver, British Columbia, June 3-5, 1968. Handbook p. 54 (Abstr.) 1968.

17. Ramirez, F., N. Mandava, and C.P. Smith. Spirooxyphosphoranes. Tetrahedron 24:1785-1799. 1968.

18. Fodor, G., N. Mandava, and I. Weisz. Nucleophilic dequaternization of condensed azetidinium salts-II. 8-methyl-8-azonium tricyclo [2.2.1.1.2,8] nonane salts. An NMR study. Tetrahedron 24:2357-2366.

19. Fodor, G., J.D. Medina, and N. Mandava. A quantitative study of the quaternization of tropanes. Chem. Comm. 581-S83. 1968.

20. Mandava, N. and G. Fodor. The configuration of the ring nitrogen in N-oxides and the conformation of tropanes. Can. J. Chem. 46:2761-2766.

21. Fodor, G. and N. Mandava. Steric course of quaternizations - A combined chemical and NMR study. 157th National Meeting. American Chemical Society. Minneapolis, Minnesota, April 1969. ORGN 10 (Abstr.) 1969.

22. Mitchell, J.S., N. Mandava, J.R. Plimmer, J.F. Worley, and M.E. Drowne. Plant growth-regulating properties of some acetone condensation products. Nature 223:1386-1387. 1969.

23. Fodor, G., N. Mandava, and D. Prehl. Quantitative studies on the steric course of quaternization in tertiary amines (in French) . 52nd Canadian Chemical Conference on the Chemical Institute of Canada, Montreal, May 26-28, 1969. ORGN. 64 (Abstr.) 1969.

24. Fodor, G., N. Mandava, and D. Prehl. Conformational aspects of N-quaternization -- A combined chemical and nuclear magnetic resonance study. International Symposium on Conformational Analysis (IUPAC), Brussels, Belgium. September 1969. (Abstr.) 1969.

25. Mandava, N. Methods for detection, separation, and characterization of gibberellins. Crops Research Series, U.S. Department of Agriculture. CR-56-69, pp. 1-39. (Review Article). 1969.

26. Mandava, N. and E.L. Gooden. Stereochemistry of ring A in gibberellic acid as indicated by use of nuclear Overhauser effects. J. Agr. and Food Chem. 18:172-173. 1970.

27. Fodor, G., F. Letourneau, and N. Mandava. Spectroscopic studies on the intermediate from O□N-acyl migration of β-ethyl-3,4,6-triacetyl-2-amino- deoxy-D-glucose. Can. J. Chem. 48:1468-1471. 1970.

28. Berlin, K.D., S. Rengaraju, T.E. Snider, and N. Mandava. Reactions of phosphorus azides with activated alkynes. J. Org. Chem. 35:2027-2029. 1970.

29. Fodor, G., N. Mandava, and D. Frehel. Equatorial quaternization of tropanes. Am. Chem. Soc. Meeting, Houston, February 1970. ORGN 87 (Abstr.) 1970.

30. Mandava, N. and J.W. Mitchell. New plant hormones: Their isolation and chemical characterization. Am. Chem. Soc. Meeting, Chicago, September 1970, AGFD 11. (Abstr.) 1970.

31. Mitchell, M.W., N. Mandava, M. V. Smith, J.F. Worley, and Jr. R. Plimmer. Brassins -- A new family of plant hormones from rape pollen. Nature 225:1065-1066. 1970.

32. Mandava, N. and J.W. Mitchell. Plant hormones from cotton fibers: Isolation and structure determination. The Chemical Institute of Canada and American Chemical Society Joint Conference, Toronto, Canada. PEST 020. (Abstr.) 1970.

33. Mandava, N. and J.W. Mitchell. New plant hormones: Chemical and biological investigations. Ind. Agr. 15:19-31. 1971.

34. Mandava, N. and J.W. Mitchell. Fatty hormones in cotton fibers. I - Their isolation and characterization of the constituent fatty acids. J. Sci. Food and Agr. 22:553-558. 1971.

35. Mandava, N. and G. Fodor. Stickstoff Stereochemie - Quarternary pyrrolidiniumsalze. (English title: Stereochemistry of nitrogen in the quaternary pyrrolidinium salts). Liebigs Annalen der Chemie 741:167-180. 1971.

36. Fodor, G., R.V. Chastain, D. Frehel, M.J. Cooper, N. Mandava, and E. L. Gooden. Stereochemistry of tropane quaternization. J. Am. Chem. Soc. 93:403-413. 1971.

37. Mandava, N. Plant hormones -- Their present status. Science Reporter. (India) 8(6):1-5. (Review Article) 1971.

38. Mandava, N. A convenient device for removing dissolved oxygen from NMR samples. Applied Spectroscopy 25:382-383. 1971.

39. Mitchell, J.W., N. Mandava, J.F. Worley, and M.E. Drowne. Fatty hormone in pollen and immature seeds of bean. J. Agr. Food Chem. 19:391-393. 1971.

40. Huber, C. S. , G. Fodor, and N. Mandava. Absolute configuration of scopolamine N-oxide and of related compounds. Can. J. Chem. 49:3258-3270. 1971.

41. Fodor, G., N. Mandava, D. Frehel, and M.J. Cooper. Conformational aspects of N-quaternization. A combined chemical and nuclear magnetic resonance study. Conformational Analysis -- Scope and Present Limitations. (G. Chiwidoglu, ed.) Academic Press, New York. 21:73-91. (Book Chapter). 1971.

42. Mandava, N. and J.W. Mitchell. New plant hormones: Their occurrence and effect on plant development. Plant Science Symposium, Biochemical Societies of India and UK, Symposium of Lipids and Environmental Biochemistry, Bangalore, India, December 5-11, 1971. (Abstr.) 1971.

43. Mandava, N. and J.W. Mitchell. Structural elucidation of some fatty hormones obtained from different plant parts. 8th International Union Symposium on the Chemistry of Natural Products, International Union of Pure and Applied Chemistry, New Delhi. February 6-12, 1972. (Abstr.) 1972.

44. Mitchell, J.W., N. Mandava, and J.F. Worley. Brassins. McGraw-Hill Yearbook of Science and Technology, pp. 128-130. (Review Article). 1972.

45. Anderson, J.D., N. Mandava, and C.R. Gunn. Plant growth inhibitor from *Abrus Precatorius* seeds. Plant Physiol. 49:1024-1026. 1972.

46. Mandava, N. and J.W. Mitchell. Structural elucidation of brassins. Chem. & Ind., pp. 930-931. 1972.

47. Mandava, N. B.A. Sidwell, J.W. Mitchell, and J.F. Worley. Production of brassins from rape pollen: A convenient preparatory method. Ind. Eng. Chem. Product Research and Development 12:138-139. 1973.

48. Mandava, N. Application of chromatographic methods in plant hormone research. Amer. Lab. 5:27-36. 1973.

49. Mandava, N. and J.W. Mitchell. Chemistry and Physiology of new plant hormones, brassins. The Eighth International Conference on Plant Growth Substances, Tokyo, Japan. August 26 - September 1, 1973. (Abstr.)

50. Mandava, N. and J.W. Mitchell. Fatty plant hormones. Their occurrence and characterization. Twenty-Fourth Congress of International Union of Pure and Applied Chemistry, Hamburg, Germany, September 1973. (Abstr.) 1973.

51. Mandava, N., J.D. Anderson, S.R. Dutky, and M.J. Thompson. Novel occurrence of 5-beta-cholanic acid in plants: Isolation from Jequirity bean seeds (*Abrus Precatorius* L.) . Steroids 23:357-361. 1973.

52. Anderson, J.D., N. Mandava, and S. Garrett. Inhibition of hormone-induced ethylene synthesis by Abrus inhibitor. Plant Physiol. Supp. 19 (Abstr.) 1974.

53. Mandava, N. A convenient device for removing dissolved oxygen from NMR samples. Leopold May (ed.), Spectroscopic Tricks, Plenum Press, New York, New York 3:202-205. (Contributed Article). 1974.

54. Anderson, J.D. , N. Mandava, and S. Garrett. Inhibition of hormone-induced ethylene synthesis by the indole plant-growth inhibitor from *Abrus precatorius* seeds. Plant and Cell Physiol. 16:233-236. 1975.

55. Mandava, N. and B.A. Sidwell. Application of chromatographic methods in the analysis of

lipids from rape pollen. Washington Chromatography Discussion Group Symposium. May 15, 1975. (Abstr.) 1975.

56. Mandava, N. and L.E. Gregory. Effect of 3-methylene oxindole on root initiation in mung bean hypocotyl. Phyton 33:173-177. 1975.

57. Mandava, N. and J.F. Worley. New plant hormones: Progress on chemistry and physiology. 2nd Symposium on plant growth substances, Sofia, Bulgaria. (Abstr.) 1975.

58. Toole, V. K. , N. Mandava, and J. R. Worley. Seed germination and dormancy responses of acetone condensation products. Plant and Cell Physiol. 17:1015-1024. 1976.

59. Mandava, N., J.F. Worley, J.D. Warthen, M.D. Grove, and P.E. Pfeffer. Isolation and Identification of Brassins: A Progress Report. Ninth International Conference on Plant Growth Substances. Lausanne, Switzerland. (Abstr.) 1976.

60. Worley, J.F. and N. Mandava. Brassin. McGraw-Hill Yearbook of Science and Technology. 4th Edition, Volume 2, pp. 350-352. (Review Article). 1977.

61. Warthen, J.D. and N. Mandava. Separation of hydroxyphenylacetic acid isomers by reverse-phase high-performance liquid chromatography. J. Chromatogr. 144:263-265. 1977.

62. Mandava, N. Application of chromatographic methods in the analysis of naturally-occurring plant growth substances. Washington Chromatography Symposium, p. 4. (Abstr.) 1977.

63. Mandava, N. and G.R. Chandra. Glucolipids of rape *(Brassica napus* L.) pollen. Presentation: American Oil Chemists Society Symposium, May 1978. (Abstr.) 1977.

64. Mandava, N. , J. Velasco, and G.R. Chandra. New analytical methods for abscisic acid determination. Plant Physiol. Washington Section, April 1978. (Abstr.) 1978.

65. Grove, M.D., G.F. Spencer, P.E. Pfeffer, N. Mandava, J.D. Warthen J.F. Worley. 6-beta-Glucopyransoyl fatty acid esters from *Brassica napus* pollen. Phytochem. 176:1187-110. 1978.

66. Chandra, G.R., N. Mandava, and J.D. Warthen. Biosynthesis of glucosyl esters of fatty acids in rape (*Brassica napus* L.) another tissue. Plant Physiol., Washington Section, April 1978. (Abstr.) 1979.

67. Velasco, J., G.R. Chandra, and N. Mandava. Derivatization of abscisic acid as the p-nitrobenzyl ester. J. Agric. Food Chem. 26:1061-1064. 1978.

68. Chandra, G.R., N. Mandava, and J.D. Warthen. Biosynthesis of glucosyl esters of fatty acids in rape (*Brassica napus* L.) another tissue. Plant Physiol., Abstract No. 527 61:96. (Abstr.) 1978.

69. Mandava, N. Analysis of trace plant constituents. Ninth Materials Research Symposium - Trace Organic Analysis. April 10-13, 1978. (Abstr.) 1978.

70. Chandra, G.R., N. Mandava, and J.D. Warthen. Uridine diphosphate glucose: fatty acid glucosyl transferase activity. Biochem. Biophys. Acta 526:387-397. 1978.

71. Mandava, N. M. Kozempel, J.F. Worley, D. Matthees, J.D. Warthen, M. Jacobson, G.L. Steffens, H. Kenney, and M.D. Grove. Isolation of brassins by pilot plant extraction of rape (*Brassica napus* L.) pollen. Ind. Eng. Chem. 17:351-354. 1978.

72. Mandava, N. Trace plant constituents - Methods and analysis. Proc. Ninth Materials Research Symposium on Trace Organic Analysis. NBS Special Publication No. 519, pp. 803-807. 1979.

73. Steffens, G.L., J.G. Buta, L.E. Gregory, N. Mandava, W.J. Meudt, and J.F. Worley. New plant-growth regulators isolated from higher plants. Advances in Pesticide Science. H. Geissbuhler, Editor, pp. 343-346. (Conference Proceedings). 1979.

74. Mandava, N. and G.R. Chandra. Glucolipids of rape (*Brassica napus* L.) pollen. Symposium on the Pharmacologically Active Lipids. J. Kabara, Editor. AOCS Monograph No. 5, pp. 134-144, Chapter 13 (Book Chapter). 1978.

75. Mandava, N. , R. G. Orellana, and J. D. Warthen. Phytotoxins from *Rhizoctonia solani*. Amer. Chem. Soc. Meeting. Fall 1978. Miami, Florida. (Abstr.) 1978.

76. Grove, M.D.*, G.F. Spencer, W.K. Rohwedder, N. Mandava*, J.F. Worley, J.D. Warthen, G.L. Steffens, J.L. Flippen-Anderson, and J.C. Cook. Brassinolide: A unique plant growth promoting steroid from *Brassica napus* pollen. Nature (London) 281:216217. 1979.

77. Thompson, M.J.*, N. Mandava*, J.L. Flippen-Anderson, J.F. Worley, S.R. Dutky and W.E. Robbins. Synthesis of brassinosteroids . New plant growth promoting steroids. J. Org. Chem. 44:5002- 5004. 1979.

78. Yopp, J.H., G.C. Colclasure, and N. Mandava. Effect of brassin-complex on auxin and gibberellin mediated effects in the morphogenesis of the etiolated bean hypocotyl. Physiol. Plant 46:247-254. 1979.

79. Mandava, N. Natural products in plant growth regulation. In Plant Growth Substances, ACS Symposium Volume III, pp. 135214. (Book Chapter). 1979.

80. Mandava, N., R.G. Orellana, J.D. Warthen, J.F. Worley, S.R. Dutky, H. Finegold, and B.C. Weathington. Phytotoxins in *Rhizoctonia solani*. Isolation and biological activity of m-hydroxy and m-methoxyphenylactic acids. J. Agric. Food Chem. 28:71-75. 1979.

81. Mandava, N. and H. Finegold. 1H and 13C NMR spectra of phenylacetic acid and its derivatives. Spectroscopy Letters 13:591-68. 1979.

82. Ladd, D.B., J.H. Yopp, and N. Mandava. Inhibition of - IAA oxidase by brassin- complex. Plant Physiol. 63:51. (Abstr.) 1979.

83. Grove, M. D. , G. F. Spencer, N. Mandava, J. F. Worley, J. D. Warthen, G.L. Steffens, and J..L. Flippen Anderson. Isolation and structure of a new growth- promoting steroid from *Brassica napus* pollen. Tenth International conference on Plant Growth Substances. Madison, Wisconsin, July 22-26, 1979. Abstract No. 501, p. 25. (Abstr.) 1979.

84. Thompson, M.J., N. Mandava J.L. Flippen-Anderson, J.F. Worley, S.R. Dutky, and W.E.

Robbins. Synthesis of brassinosteroids and relationships of structure to their plant growth promoting effects. Tenth International Conference on Plant Growth Substances. Madison, Wisconsin, July 22-26, 1979. Abstract No. 503, p. 25. (Abstr.) 1979.

85. Meudt, W.J. , J.F. Worley, L.E. Gregory, N. Mandava, J.G. Buta, G.L. Steffens, and M.J. Thompson. Biological activity of brassinolide. A new steroidal lactone from rape pollen. Tenth International Conference on Plant Growth Substances. Madison, Wisconsin, July 22-26, 1979. Abstract No. 503, p. 25. (Abstr.) 1979.

86. Yopp, J.H., D.B. Ladd, and N. Mandava. Brassin activity in auxin, gibberellin, and cytokinin bioassay systems. Tenth International Conference on Plant Growth Substances. Madison, Wisconsin, July 22-26, 1979. Abstract No. 504, p. 49. (Abstr.) 1979.

87. Gregory, L.E., N. Mandava, and D.K. Cina. Brassinolide activity measured by the mung bean epicotyl bioassay. Tenth International Conference on Plant Growth Substances. Madison, Wisconsin, July 22-26, 1979. Abstract No. 551, p. 149. (Abstr.) 1979.

88. Mandava, N. and J.F. Worley. Brassinolide type growth-promoting activity in various pollen. Tenth International Conference on Plant Growth Substances. Madison, Wisconsin, July 22-26, 1979. Abstract No. 552, p. 49. (Abstr.) 1979.

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