

REFERENCES

- Aastveit, K. 1967. Induced mutations affecting quantitative characters in autotetraploid rye population. *Radiat. Bot.* 7:363-368
- Amer, S.M. and Ali, E.M. 1969. Cytological effect of pesticides-II. Mitotic effects of some phenols. *Cytologia* 37: 533-540.
- AOAC, 1965. Official methods of Analysis, 12th Edn. Association of Official Analytical chemists. Washington, D.C. pp. 744-745.
- Ashri, A. 1972. Mutations and physiological reaction to several chemical mutagens in peanuts, Arachis hypogaea L. In: Induced Mutations and plant improvement. IAEA, Vienna. pp.253-264.
- Auerbach, C. 1973. History of research on chemical mutagens. In: chemical Mutagenesis- Principle and method for their detection. Ed. Hollander, A. Plenum Press, New York. pp. 1-19.
- Barbosa, H.M., Carneiro, J.E.S. and Vieira, C. 1988 (a). Ethylmethane Sulphonate induced seed coat colour mutants in Phaseolus vulgaris L. *Rev. Brasil. Genet.* 11: 123-128.
- Barbosa, H.M., Carneiro, J.E.S. and Vieira, C. 1988 (b). Ethylmethane Sulphonate-induced mutations in Phaseolus vulgaris L. *Rev. Brasil. Genet.* 11: 699-705.
- Barbosa, H.M. and Guimaras, M.A. 1989. Inheritance of self-coloured and striped seed coat mutants induced in Phaseolus vulgaris L. *Rev. Brasil Genet.* 12: 581-588.

- Basu, R.K. 1962. Radiation induced aberrant plant growth in jute II. The leaf abnormalities. Trans. Bose Res. Inst. 25: 199-218
- Belling, J. 1928. The iron aceto-carmin method of fixing and staining chromosomes. Biol. Bull. 50: 160-162.
- Bender, K, and Gaul, H. 1966. Nachwasche, Rucktrocknung and lagerung bei AMS- behandelten Gerstensamen. Radiat. Bot. 6: 505-518.
- Bender, K. and Gaul, H. 1967. Variierung der AMS- Wirkung bei Gerste durch Anwendung Anwendung Verschiedener Behandlungs- und Nachwaschtemperaturen. Radiat. Bot.7: 289-301.
- Bhatia, C.R. and Swaminathan, M. S. 1962. Induced polygenic variability in bread wheat and its bearing on selection procedures. Z. Pflanzenzyecht 48: 317-326.
- Bhatia, C.R. and Van Der Veen, J.H. 1965. Two way selection for EMS Induced micromutations in Arbidopsis thaliana (L) Heynh. In: The use of Induced Mutations in Plant breeding. Proc. FAO/IAEA meet. Rome. pp. 497-503.
- Bir, S.S. 1990. SOCGI Plant chromosome number report- IX. J. Cytol. Genet. 25: 137-148.
- Bhattacharya, S. and Shama Rao, H.K. 1978. Effect of exogenous IAA on radiation induced seedling growth in rice. Indian J. Exp. Biol. 16: 125-126.



- Blixt, S. 1972. Mutation genetics in Pisum. Agri. Hort. Genet. 30: 1-293.
- Blixt, S. 1979. Natural and induced variability for seed protein in temperate legumes. In: Seed Protein Improvement in Cereals and Grain Legumes. II. IAEA, Vienna. pp. 3-31.
- Bobak, M. and Herich, R. 1978. Cytomixis as a manifestation of pathological changes after the application of trifluraline. The Nucleus 21: 22-26.
- Borojevic, K. and Borojevic, S. 1968. Response of different genotypes of Triticum aestivum sp. vulgare to mutagenic treatment. In: Mutation in Plant Breeding- II. IAEA, Vienna. pp. 15-16.
- Britton, N. and Millspaugh, C.F. 1920. The Bahama flora. The new era printing company, Lancaster, pp. 184.
- Brock, R.D., Shaw, H.F., and Callen, D.F. 1972. Induced variation in quantitatively inherited characters. In: Induced Mutations and Plant Improvement. IAEA, Vienna. pp. 317-322.
- Broertjes, C. and Vanharten, A.M. 1978. Application of Mutation Breeding Methods in the Improvement of Vegetatively Propagated Crops. Elsevier Scientific Publ. Co., Amsterdam. pp. 316.
- Brookes, P. 1990. The early history of the biological alkylating agents 1918-1968. Mut. Res. 233: 3-14.

- Celarier, R. P. 1956. Tertiary butyl alcohol dehydration of chromosome smear. *Stain Techn.* 31: 155-157.
- Chaghtai, S.A. and Hasan, Z. 1979. Effect of EMS, MES and MMS on the chromosomal behaviour of Lens esculenta during microsporogenesis. *Biologia plantarum.* 21: 280-283.
- Chaturvedi, S.N. and Singh, V.P. 1978. Increased mutagenic effects of EMS in mung bean (Phaseolus aurens Roxb.) by DMSO. *J. Cytol. Genet.* 13: 116-119.
- Crocomo, O.J, Gerald Lee, T.S., Derbyshire, E. and Boulter, D. 1979. Biochemical investigations on the seed proteins of Brazilian variety and mutant of Phaseolus vulgaris. In: *Seed Protein Improvement in Cereals and Grain Legumes. I.* IAEA, Vienna, pp. 217-229.
- Dahiya, B.S. 1973. Improvement of mung bean through induced mutations. *Indian J. Genet. Plant Breed.* 33: 460-468.
- Dalling, M.S., Trunoff, P.N. and Swinden, L.B. 1979. Identification of subterranean clover Trifolium subterranean cultivars on the basis of electrophoretic mobility of seed globulin protein. *Seed Sci. Tech.* 7: 14-123.
- Daly, K. 1960. The induction of quantitative variability induced by gamma radiation in Arabidopsis thaliana. *Genetics* 45:983.

- Danial, W.W. 1977. Introductory Statistics with Applications. Houghton Mifflin Company, Boston. pp. 276-286.
- Darlington, C.D. and Upcott, M.D. 1940. Spontaneous chromosome change. J. Genet. 41: 293-338.
- Datta, A.K. and Biswas, A.K. 1985. Induced mutagenesis in Nigella sativa L. Cytologia 50: 545-562.
- Devi, P. 1990. Cytological effect of chemical mutagens in Trigonella foenum-gracecum. J. Cytol. Genet. 25: 117-119.
- Dhaliwal, H.S. 1977. Genetic variability and improvement of seed proteins in wheat. Theor. Appl. Genet. 51: 71-79.
- Doll, H., Koie, B. and Eggum, B.O. 1974. Induced high Lysine mutants in barley. Radiat. Bot. 14: 73-80.
- Down, E.E. and Anderson, A.L. 1956. Agronomic use of an x-ray induced mutant. Science 124: 223-224.
- Dnyansagar, V.R. and Kothekar, V.S. 1983. Gamma-ray induced morphological mutants in diploid Solanum nigrum L. Proc. "Current Approaches in Cytogenetics", Patna. pp. 189-195.
- Drake, J.W. 1970. The Molecular Basis of Mutation. Holden-day publication, Sanfranscisco. pp. 154-155.

- Dubinina, N.P. 1964. Problems of Radiation Genetics. Oliver and Boyd, London. pp. 445.
- Ehrenberg, L. and Gustafsson, A. 1957. On the mutagenic action of ethylene oxide and diepoxybutane in barley. Hereditas 43: 595-602.
- Eriksson, G. and Lindgren, D. 1977. Chimeras. In: Manual on Mutation Breeding. 2nd Edn. Tech. Rep. Series No. 119. IAEA, Vienna. pp. 98-105.
- Evans, H.S. 1962. Chromosome aberrations induced by ionizing radiations, Int. Rev. Cytol. 13: 221-321.
- FAO/IAEA. 1991. Mutation Breeding Newsletter. Joint FAO/IAEA division of nuclear techniques in food and agriculture, Vienna, p. 16.
- Farsov, V.N. and Konoplia, S.P. 1967. Induced mutations of the extreme type of branching in fine-fibre cotton. Genetika USSR 5: 162-166.
- Fawcett, W. and Rendle, A.B. 1920. Flora on Jamaica IV. Leguminosae to Callitrichaceae. British Museum. Nat. Soc. publi. pp.36.
- Filippetti, A. and Marzano, C.F. 1984. New interesting mutants in Vicia faba after seed treatment with gamma-rays and ethylmethanesulfonate. Fabis Newsletter 9: 22-25.

- Freese, E. 1961. Molecular mechanism of mutation. In: Chemical Mutagen- Principle and methods for their detection I. Ed. Höllander, A. Plenum Press, New York. pp. 7.
- Frey, K.J. 1965. Mutation breeding for quantitative attributes. In: The use of Induced Mutations in Plant Breeding Radiat. Bot. Suppl. 5: 465-475.
- Froese- Gertzen, E.E., Konzak, C.F., Foster, R. and Nilan, R.A. 1963. Correlation between some chemical and Biological reactions of ethyl-methanesulfonate. Nature 198: 447-448.
- Froese- Gertzen, E.E., Konzak, C.F. Nilan, R.A. and Heiner, R.E. 1964. The effect of ethyl methanesulfonate on the growth response, chromosome structure and mutation rate in barley. Radiat. Bot. 4: 61-69.
- Gaul, H. 1965. The concept of macro-and micromutations and results on induced micromutations in barley. In: The use of induced mutations in Plant Breeding. Radiat. Bot. Suppl 5: 407-428.
- Gaul, H. 1967. The use of induced mutations in breeding for quantitative characters. Int. Rice. Comm. Newsletter XV: 13-14.
- Gaul, H. 1977. Sterility. In: Manual on Mutation Breeding. 2nd Ed. Tech. Rep. Series No. 119. IAEA, Vienna. pp. 96-98.

- Gaul, H., Bender, K., Ulonska, E. and Sato, M. 1966. EMS- induced genetic variability in barley, the problems of EMS induced sterility and a method to increase the efficiency of EMS treatment. In: Mutations in Plant Breeding. IAEA, Vienna. pp. 249-252.
- Gaul, H., Frimmel, G. Gichner, T. and Ulonska, E. 1972. Efficiency of mutagenesis. In: Induced Mutations and Plant Improvement. IAEA, Vienna. pp. 121-139.
- Gautum, A.S. Sood, K.C. and Richarria, A.K. 1992. Mutagenic effectiveness and efficiency of gamm-rays, ethylmethane-sulphonate, and their synergistic effects in Black gram (Vigna mungo L), Cytologia 57: 85-89.
- Ghatnekar, M.V. 1964. Primary effect of different mutagens and the disturbances induced in the meiosis of X_1 and X_2 of Vicia faba Caryologia 17: 219-244.
- Gilot, J.M. and Moutschen-Dahmen, J. 1967. Mutagenesis with ethyl methansulphonate in Nigella damascena L. Experimentia 673-676.
- Gopal-Ayengar, A.R., Rao, N.S. and Joshua, D.C. 1969. Modification of the efficiency of diethyl sulphate in rice seeds pre-soaked in water. In: Induced Mutations in Plants, Proc. Symp. IAEA, Vienna. pp. 271-280.

- Gordon, S.A. 1957. The effect of ionizing radiation on plants, biochemical and physiological aspects, *Quart. Rev. Biol.* 32: 3-14.
- Goswami, H.K. and Dave, N. 1975. Chromosomal aberrations in Pisum sativum by mutagenic fields-x-rays and Urea and their restitution in sucrose. *Cytologia* 40: 53-60.
- Gottschalk, W. 1966. The yield capacity of useful mutants. A critical review of a collection of mutant types of Pisum. In: *Mutation in Plant Breeding*. IAEA, Vienna. pp. 85-101.
- Gottschalk, W. 1970. Chromosome and nucleus migration during microsporogenesis of Pisum sativum. *The Nucleus* 13: 1-9
- Gottschalk, W. 1976. Adaptability of mutants to diverse natural environmental conditions. In: *Induced Mutations in Cross-Breeding*. IAEA, Vienna. pp. 37-44.
- Gottschalk, W. and Bandel, G. 1978. Recombinants from crosses between fasciated and non-fasciated pea mutants. 1. Early flowering recombinants. *Z. Pflanzenzucht* 80: 117-128.
- Gottschalk, W. and Muller, H.P. 1970. Monogenic alteration of seed protein content and protein pattern in x-ray induced Pisum mutants. In: *Improving Plant Protein by Nuclear Techniques*. IAEA Vienna. pp. 201-212.

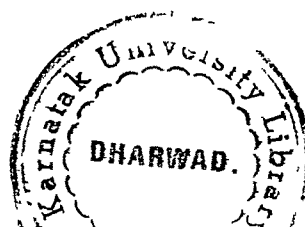
- Gottschalk, W. and Muller, H.P. 1979. The reaction of an Early flowering Pisum recombinant to environment and genotypic back-ground. In: Seed Protein Improvement in Cereals and Grain Legumes-II. IAEA. Vienna pp. 259-272.
- Gottschalk, W., and Klein, H.D. 1976. The influence of mutant genes on sporogenesis. A survey on the genetic control of meiosis in Pisum sativum. Theor. Appl. Genet. 48: 23-34.
- Gottschalk, W. and Wolff, G 1983. Induced Mutations in Plant Breeding. Monographs on Theoretical and Applied Genetics 7. Springer-Verlag, Berlin. pp 1-230.
- Gridley, H.E. and Evans, A.M. 1979. Prospects for combining high yield with increased protein production in Phaseolus vulgaris L. Seed Protein Improvement in Cereals and Grain Legumes II. IAEA, Vienna pp. 47-58.
- Gunckel, J.E. 1957. The effects of ionizing radiation on plants-IV Morphological effects. Quart. Rev. Biol. 32: 46-56.
- Gustafsson, A^o. 1940. The mutation system in the Chlorophyll apparatus. Lunds Univ. A^orskr. 36: 1-40
- Gustafsson, A^o. 1947. Mutation in agricultural plants. Hereditas 33: 1-100.

- Gustafsson, A[©], 1969. A Study of induced mutations in plants.
In: Induced Mutations in Plants. IAEA, Vienna. pp. 9-31.
- Guimaraes, M.A., Barbosa, H.M. Vieira, C. and Sedyama, C.C. 1989.
Agronomic potential of seed coat colour mutants induced
in Phaseolus vulgaris L. Rev. Brasil. Genet 12: 93-101.
- Hanis, M. 1974. Induced mutations for disease resistance in wheat
and barley. In: Induced Mutations for Disease Resistance
in Crop plants. IAEA, Vienna. pp. 49-56.
- Heiner, R.E., Konzak, C.F., Nilan, R.A. and Legault, R.R. 1960.
Diverse ratio of mutations to chromosome aberrations in
barley treated with diethyl sulphate and Gamma-rays
Proc. Nat. Aca. Sci. 46: 1215-1221.
- Heslot, H. 1977. Review of main mutagenic compounds. In: Manual on
Mutation Breeding. Tech. Rep. Series No. 119. 2nd Edn.
IAEA, Vienna. pp. 51-59.
- Hirano, H. 1975. Organ specificity of peroxidase isozymes in
mulberry (Morus spp). J. Seric. Sci. Jpn. 44: 417-423.
- Hung, V. 1988. Effect of mutagen treatment on pollen sterility in
Peas (Pisum sativum L.) Acta Agron Hung. 37:293-300.

- Hussein, A., Ramirez, H, Bashuk, W. and Roca, W. 1987. Identification of cultivars of forage legume (Desmodium ovalifolium Guill et Perr) by their electrophoretic pattern. Can J. Plant Sci. 67: 713-717.
- Hussein, H.A.S. and Abdalla, M.M.F. 1974. Effect of single and combined treatments of gamma-rays and EMS on the M₁ fertility and M₂ Chlorophyll mutations in Vicia faba L. Egypt. J. Genet. Cytol. 3: 246-258.
- Hussein, H.A.S. and Abdalla, M.M.F. 1979. Gamma-ray and EMS induced mutations in Vicia faba. L. In: Seed Protein Improvement in Cereals and Grain legumes II. IAEA, Vienna, pp. 23-31.
- Hussein, H.A.S., Selim, A.R. and EL-Shawaf, I.I.S. 1974. EMS and gamma-rays induced mutations in Pisum sativum L. Effects on the frequency and spectrum of M₂ Chlorophyll mutations. Ibid 8: 106-116.
- Hutton, E.M. 1960, Flowering and pollination in Indigofera spicata, Phaseolus lathyroides, Desmodium uncinatum and some other tropical pasture legumes. Emp. J. Exp. Agri. 28: 235-243.
- Hutton, E.M. and Gray, S. 1967. Hybridization between the legumes Desmodium intortum, Desmodium uncinatum and Desmodium sandwicense. J. Australian Inst. Agri. Sci. 33: 122-123.

- Ismail, M.A., Heakal, M.Y.^{and} Fayed, A. 1976. Improvement of yield through induced mutagenesis in broad bean. *Indian J. Genet. Plant Breed.* 36 : 347-350.
- Jahagirdar, H.A. 1975. Cytogenetical studies in Foeniculum vulgare Mill. Ph.D. Thesis, University of Nagpur.
- Jayabalan, N. and Rao, G.R. 1987. Effect of NMU and EMS on Chromosomal behaviour of Lycopersicon esculentum Mill. during meiosis. *Cytologia* 52 : 813-819.
- Joshua, D.C., Rao, C. and Gottschalk, W. 1972. Evolution of leaf shape in jute. *Indian J. Genet. Plant Breed.* 32 : 392-399.
- Kallo. 1973. Chromosomal alterations in mitotic and meiotic system as influenced by gamma rays in Pisum. *Cytologia* 37 : 643-651
- Kamra, O.P. 1960. Chromatin extrusion and cytomysis in pollen mother cells of Hordeum. *Hereditas* 46 : 592-600.
- Kamra, O.P. and Brunner, H. 1977. Mode of action of chemical mutagen. In: *Manual on Mutation Breeding*, Tech. Rep. Series No. 119, IAEA, Vienna. pp. 59-65.
- Kaul, M.L.H. 1977. Radiation genetics studies in the garden pea
I. Two early flowering and ripening induced mutants.
Curr. Sci. 46 : 198-200.

- Kawai, T. 1969. Relative effectiveness of physical and chemical mutagens. In: *Induced Mutations in Plants*, IAEA, Vienna. pp. 137-152.
- Khalatkar, A.S. and Bhatia, C.R. 1975. Synergistic effects of combined treatment of gamma radiation and ethylmethansulphonate in barley. *Radiat. Bot.* 15: 223-229.
- Khalatkar, A.S., Gopal-Ayengar, A.R. and Bhatia, C.R. 1977. Correlation between EMS uptake by barley embryos under different treatment conditions and mutation frequency. *Mut. Res.* 4: 45-46.
- Khan, I.A. 1987. Effect of gamma rays and EMS on quantitative characters. *Bangla Desh J. Bot.* 15: 163 - 168.
- Kihlman, B.A. 1966. *Action of Chemicals on Dividing cells*, Prentice Hall Inc. New Jersey, pp. 260.
- Konzak, C.F. 1984. Role of Induced mutations. In: *Crop Breeding, a contemporary basis* Eds. Vose, P.B. and Blixt, S.G. Pergamon Press, Oxford. pp. 216-292.
- Konzak, C.F. and Mikaelson, K. 1977. Selecting parents and handling the $M_1 - M_3$ generations for the selection of mutant. In: *Manual on Mutation Breeding*. 2nd Edn. Tech. Rep. Series No 119. IAEA, Vienna. pp. 125-138.



- Konzak, C.F., Nilan, R.A., Wagner, J. and Foster, R.J. 1965.
Efficient chemical mutagenesis. In: The use of induced
Mutations in Plant Breeding. Radiat. Bot. Suppl. 5:
49-70.
- Konzak, C.F., Wickham, I.M. and Dekock, M.J. 1972. Advances in
methods of mutation treatment. In: Induced Mutation and
Plant Improvement. IAEA, Vienna. pp. 95-120.
- Kotheekar, A.V. and Kotheekar, V.S. 1992. Promising mutants in
Moth bean. Marathwada Uni. J. Sci. 19: 1-2.
- Kotheekar, V.S. 1983. Effect of mutagen on Vitamin C content in
Solanum nigrum, Marathwada. Uni. J. Sci. 22: 21-28.
- Kotheekar, V.S. 1987. Induced chromosomal aberrations in diploid
and tetraploid Solanum nigrum L. Cytologia 52: 107-110.
- Laemmli, U.K. 1970. Cleavage of structural proteins during the
assembly of the head of bacteriophage T₄. Nature 227:680-685.
- Landizivisky, E. and Hymowitz, T. 1979. Seed protein electrophoresis
in taxonomic and evolutionary studies. Theor. Appl. Genet
54: 145-151.

- Mackey, J. 1968. Mutagenesis in vulgare wheat. *Hereditas* 59: 505-517.
- Mahna, S.K., Gupta, R. and Saini, E.E. 1990. Chemical mutagenesis in currant tomato (Lycopersicon pimpine-llifoelium Mill.). *J. Cytol. Genet.* 25: 12-18.
- Malik, C.P., and Mary, T.N. 1971. Mutation breeding in some rye grass species. Intern. Symp. On Use of Isotopes and Radiat. in Agri. and Animal Husbandry Res. New Delhi. pp. 39-45.
- Malik, I.A., Tahir, N, Sarwar, E. and Ali, S. 1979, Evaluation of radiation-induced mutant lines of mung bean (Vigna radiata (L). Wilezek) for grain yield and protein content. In: Seed Protein Improvement in Cereals and Grain Legumes II, IAEA, Vienna. p. 445.
- Manual on Mutation Breeding. 1977. Tech. Rep. Series No. 119. IAEA Vienna.
- Matsumura, S. and Mabuchi, T. 1964. Relations of radiation effects to dose rates of gamma or X - irradiation in rice and wheat. *Jap. J. Genet.* 39: 120-130.
- McClintock, B. 1984. The significance of responses of the genome to challenge. *Science* 226: 792-801.

- McWhirter, K.S. 1966. Hybridization of Desmodium species. Australian J. Plant Breed. Genet. NewsLetter 22 : 66-69.
- Mehra, P.N. and Mann, A.C. 1974. Cytological effect of chemical mutagens in Pterotheca falconeria 1. Monofunctional alkylating agent. ^{The} Nucleus 17 : 167-182.
- Mertz, E.T., Bates, L.S. and Nelson, O.E. 1964. Mutant gene that changes protein composition and increases the Lysine content of maize endosperm. Crop Sci. 145 : 279-280.
- Mikaelson, K., Ahrstrom, G. and Li, W.C. 1968. Genetic effects of alkylating agents in barley. Influence of post storage, metabolic state and pH of mutagen solution. Hereditas 59 : 353-374
- Minson, D.J. 1977. The chemical composition and nutritive value of tropical legumes. In: Tropical Forage legumes, FAO, Rome, pp.186-194.
- Moh, C.C. 1969. Seed-coat colour changes induced by ethylmethane sulfonate in the common bean (Phaseolus vulgaris L.). Mut. Res. 7 : 469-471.
- Moh, C.C. 1971. Mutation breeding in Seed-coat colors of beans (Phaseolus vulgaris L.), Euphytica 20 : 119-125.

- Monti, L.M. 1968. Mutations in Peas induced by diethyl sulfate and X-rays. *Mut. Res.* 5 : 187-191.
- Motto, M., Soressi, G.P. and Salamini, F. 1975. Mutation frequencies and chimeric formation in Phaseolus vulgaris after EMS treatment of dormant seeds. *Radiat. Bot.* 15 : 291-299.
- Muller, H.P. and Gottschalk, W. 1978. Gene-ecological investigation on the protein production of different Pisum genotypes. In: *Seed Protein Improvement by Nuclear Techniques*. IAEA, Vienna. pp. 301-314.
- Myhill, R.R. and Konzak, C.F. 1967. A new technique for culturing and measuring barley seedlings. *Crop Science* 7 : 275-276.
- Nagaraja Rao, R. and Natarajan, A.T. 1965. Mutagenicity of some alkyl alkanesulfonate in barley. *Mut. Res.* 2 : 132-148.
- Narayanan, K.R. and Konzak, C.F. 1969. Influence of chemical post-treatment on the mutagenic efficiency of alkylating agents. In: *Induced Mutation in Plants*. IAEA, Vienna. p. 28.
- Natarajan, A.T. and Shivasankar, G. 1965. Studies on modification of mutation response of barley seeds to ethylmethanesulfonate. *Z. vererb lehre* 96 : 13-21.

- Natarajan, A.T. and Upadhyaya, M.D. 1964. Localised chromosome breakage induced by ethylmethane-sulphonate and hydroxylamine in Vicia faba. Chromosoma 15 : 156-169.
- NAS, 1979. Tropical Legumes: Resources for the Future. National Academy of Science, Washington, D.C. Publication.
- Nerkar, Y.S. 1976. Mutation studies in Lathyrus sativus. Indian J. Genet. Plant Breed. 36 : 223-229.
- Nerkar, Y.S. 1979. Mutagenic effectiveness and efficiency of gamma rays, EMS and MMU in Lathyrus sativus L. Indian J. Genet. Plant. Breed. 37 : 131-141.
- Nauman, C.H., Sparrow, A.H. and Schairer, L.A. 1976. Comparative effects of ionizing radiation and the gaseous chemical mutagens on somatic mutation induction in one mutable and two non-mutable clones of Tradescantia. Mut. Res. 38:53-70
- Oliver, D. 1871. Flora of Tropical Africa. II. Leguminosae to Ficoidae. L. Leave and Company, London. p. 160.
- Oka, H.I., Hayashi, J. and Shiofiri, I. 1958. Induced mutations of Polygenes for quantitative characters in rice. J. Hered. 49:11-14.
- Padmavathi, T. Prathibha, D. and Kiranmai, V. 1992. Induced variability for different biological parameters in soybean. J. Cytol. Genet. 27 : 175-177.

- Parodi, P.C. and Nebreda, M. 1979. Protein and yield response of six wheat (Triticum sp.) genotypes to gamma radiation. In: Seed Protein Improvement in Cereals and Grain Legumes II. IAEA, Vienna, pp. 201-209.
- Patil, S.H. 1980. Mutation breeding of groundnut at Trombay. In: Induced Mutations for Improvement of Grain Legume Production. IAEA, Vienna, pp. 109-110.
- Patil, S.H. and Bora, K.C. 1961. Meiotic abnormalities induced by X-rays in Arachis hypogea, Indian J. Genet. Plant Breed. 21: 59-67.
- Patil, S.H. and Thakare, R.G. 1969. Yield potential of X-ray induced Trombay groundnut mutants. In: Radiations and Radiomimetic Substances in Mutation Breeding, Bombay, pp. 375-386.
- Prasad, A.B. 1967. Comparison of the effect of X-rays (soft-x-rays) on the production of mutation in diploid and tetraploid species of Ehalaris, Cytologia 32: 444-449.
- Prasad, A.B. 1974. Production of multipolar spindles in canary grass following irradiation of dry seeds. Ibid. 9: 184-187.
- Prasad, A.B. and Sha, A.M. 1992. Mutation affecting seed coat and seed proteins in Phaseolus vulgaris L. J. Cytol. Genet. 27: 147-152.

- Prasad, M.V.R. 1976. Induced mutants in green gram. Indian J. Genet. Plant Breed. 36: 218-222.
- Rajput, M.A. 1974. Increased variability in M_2 of gamma irradiated mung bean. Radiat. Bot. 14: 85-89.
- Ramanna, M.S. and Natarajan, A.T. 1965. Studies on the relative mutagenic efficiency of alkylating agents under different conditions of treatment. Indian J. Genet. Plant Breed. 25: 24-45.
- Rao, N.B. and Lakshmi, N. 1980. Gamma-rays induced meiotic abnormalities in Capsicum annum L, Caryologia 33: 509-518.
- Rao, R.N. and Natarajan, A.T. 1965. Mutagenicity of some alkyl alkane sulphonates in barley. Mut. Res. 2: 132-48.
- Reddi, T.V.V.S. and Reddi, V.R. 1985. Cytogenetical effect of chemical mutagens in rice. Cytologia 50: 499-505.
- Reddi, V.R.K. and Gupta, P.K. 1989. Induced mutations in Triticale: Frequency and spectrum of chlorophyll mutations. Indian J. Genet. Plant Breed. 49: 183-190.
- Reddy, G.M. and Reddy, T.P. 1973: Induction of some grain shape and morphological mutations in rice variety, IR-8. Radiat. Bot. 13:181-184.

- Reinhold, M. 1980. Genetische Charakterisierung von Mutanten mit abweichender Mehltaresistenz aus einer Gerstensorte mit mittlerer Resistenz 1. Quantitative Erbanalyse im Freiland. Z. Pflanzenzucht 84: 63-77.
- Ross, W.O.S. 1962. Biological Alkylating Agents. Butterworths, London.
- Roy, R.P, Sinha, B.M.B. and Thakur, G.K. 1971. Irradiation studies in Cucumis sativus L. J. Cytol. Genet. 6: 128-135.
- Sahu, G.R. and Kumar, H. 1978. Biological response of safflower to treatment with ethyl-methanesulphonate. Indian J. Agri. Sci. 48: 162-164.
- Salamini, F., Di Fonzo, N., Gentinetta, E. and Soave, C. 1979. A dominant mutation interfering with protein accumulation in maize seed. In: Seed Protein Improvement in Cereals and Grain Legumes. I. IAEA, Vienna. pp. 97-108.
- Santos, I.S. 1969. Induction of mutations in mung bean (Phaseolus aurens Roxb) and genetic studies of some of the mutants. In: Induces Mutants in Plants. IAEA, Vienna. pp. 169-179.
- Sato, M. and Gaul, H. 1967. Effect of ethyl-methane-sulphonate on fertility in barley. Radiat. Bot. 7: 7-15.

- Savin, V.N., Swaminathan, M.S. and Sharma, B. 1968. Enhancement of Chemically induced mutation frequency in barley through alteration in the duration of presoaking of seeds. *Mut. Res.* 6: 101-107.
- Scossiroli, R.E. 1966. Wheat mutagenesis in quantitative traits. *Hereditas (Suppl.)* 2: 85-101.
- Scossiroli, R.E., 1977. Mutations in characters with continuous variation. In: *Manual on Mutation Breeding, 2nd Edn. Tech. Rep. Series No. 119. IAEA, Vienna. pp. 118-123.*
- Selim, A.A. Hussein, H.A.S. and El-Shawaf, I.I.S. 1974. EMS and Gamma ray induced mutations in Pisum sativum L. II Effect of EMS and gamma rays on M₁ germination, seedling height and fertility. *Egypt. J. Genet. Cytol.* 3: 172-192.
- Sena, J.S.P., Barbosa, H.M. and Vieira, C. 1991. Induced mutations in the common bean, Phaseolus vulgaris L. affecting flower color and seed characteristics. *Rev. Brasil, Genet.* 14: 1033-1039.
- Sena, J.S.P. and Barbosa, H.M. 1992. Chlorophyll and morphological changes induced by gamma rays in common bean (Phaseolus vulgaris L.). *Revista ceres* 39: 84-89.
- Sethi, G.S. 1975. Induced mutations of plant breeding significance in barley. *Indian J. Genet. Plant. Breed.* 35: 109-114.

- Shah, M.H. and Singh, C.M. 1986. Improvement of natural grassland by grass legume introduction and nitrogen management in north Western Himalayas, Himachal Pradesh. *J. Agril. Res.* 12 : 82-91.
- Shaikh, M.A.Q and Godword, M.B.E. 1972. The meiotic consequences of reaction induced chromosome breaks in Lathyrus sativus and Vicia ervila. *Cytologia* 37 : 497-505.
- Shama Rao, H.K. and Sears, E.R. 1964. Chemical mutagenes in Triticum aestivum. *Mut. Res.* 387-399.
- Sharma, S.K. 1990. Mutagenic effectiveness and Efficiency in Macroserma lentil. *Cytologia* 55 : 243-247.
- Siddiq, E.A. 1973. Cytogenetical effects of physical and chemical mutagens in rice. *Indian J. Genet. Plant Breed.* 33:163-170
- Siddiq, E.A. and Swaminathan, M.S. 1968. Enhanced mutation induction and recovery caused by NG in Oriza sativa L. *Indian J. Genet. Plant Breed.* 28: 297-300.
- Sidorova, K.K., Khangildin, V.V. and Debely, G.A. 1969. The experimental mutagenesis in pea breeding. *Agrobiologia (USSR)* 4: 538-543.

- Singh, C.B. and Rao, Y.P. 1971. Association between resistance to Xanthomonas oryzae and morphological and quality characters in induced mutants of indica and japonica varieties of rice. Indian J. Genet. Plant Breed. 31: 369-373.
- Singh, R.K. and Raghuvanshi, S.S. 1988. Penthaphyllus mutant in black grain Vigna mungo. Plant Food Hum. Nut. 39: 115-120.
- Singh, R.K. and Raghuvanshi, S.S. 1991. Bold seeded mutant in black gram. Mut. Breed. Newsletters. 38: 5.
- Sjodin, J. 1962. Some observations in X_1 and X_2 of Vicia faba L. after treatments with different mutagenes. Hereditas 48: 565-586.
- Sjodin, J. 1971. Induced morphological variation in Vicia faba L. Hereditas 67: 155-180.
- Skerman, P.J. 1977. Tropical forage legumes. FAO, Rome, pp. 174.
- Skerman, P.J., Cameron, D.G. and Riveros, F. 1988. Tropical Forage Legumes. 2nd Edn. FAO, Rome. pp. 557-653.
- Sree Ramulu, K. 1970. Mutation in Sorghum. Mut. Res. 10: 198-205.
- Sree Ramulu, K. 1973. Mutagenic effects of gamma rays, chemical mutagens and combined treatment in Sorghum. Z. Pflanzenzucht 68: 287-293.

Sree Ramulu, K. (1975). Mutation breeding in Sorghum Z. Pflanzenzucht.
74: 1-17.

Srivastav P.K. and Raina S.N. 1981. Cytogenetics and Tephrosia II.
Mutagenic effect of single, pre-and post irradiation treatment
with EMS and MMS in Tephrosia purpurea. Cytologia 46: 709-721.

Surange, S.R. and Deokule, S.S. 1987. Pharmacognostic studies on
Desmodium latifolium and Desmodium velutinum. J. Econ.
Taxon. Bot. 10: 233-235.

Swaminathan, M.S. 1963. Evaluation of the use of induced micro
and macro mutations in the breeding of polyploid plants.
"Symp. Application of Nuclear Energy in Agriculture, Rome,
1961. pp. 243-277.

Swaminathan, M.S., Austin, A. Kaul, A.K. and Naik, M.S. of 1969.
Genetic and agronomic enrichment of the quantity and quality
of proteins in cereals and pulses. In: New Approaches to
Breeding for Improved Plant Protein. IAEA, Vienna. pp.71-86.

Swaminathan, M.S., Chopra, V.L. and Bhaskaran, S. 1962. Chromosome
aberrations, frequency and spectrum of mutations induced by
ethyl-methansulfonate in barley and wheat. Indian J. Genet
Plant Breed. 22: 192-207.

- Swarup, V. and Gill, H.S. 1968. X-ray induced mutations in French bean. *Indian J. Genet. Plant Breed.* 28: 44-58.
- Tanaka, S. Hiraiwa, S. 1978. Induction of high protein mutants in rice. In: *Seed Progein Improvement by Nuclear Techniques.* IAEA, Vienna. pp. 191-198.
- Tarar, J.L. and Dnyansagar, V.R. 1974. Effect of ethylmethanesulfonate on Turnera ulmifolia Linn. var. angustifolia Willd. In: *Proc. 61st Indian Sci. Cong.* 67: 31.
- Tarar, J.L. and Dynansagar, V.R. 1979. Effect of gamma rays and EMS on growth and branching in Turnera ulmifolia Linn. *J. Cytol. Genet.* 14: 118-123.
- Tarar, J.L. and Dnyansagar, V.R. 1980. Comparision of ethyl-methanesulfonate and radiation induced meiotic abnormalities in Turnera ulmifolia Linn. var. angustifolia wild. *Cytologia* 45: 221-231.
- Thakur, J.R. and Shetti, G.S. 1986. Polygenic variability for grain yield and its components induced by EMS and its combination with gamma rays in barley. *Himachal Pradesh J. Agric. Res.* 12 : 66-74.
- Therrien, M.C. and Grant, W.F. 1984. Meiotic chromosomal aberrations and quadrivalent formation in Lotus corniculatus over four generations after seed treatment with EMS. *Cytologia* 49: 27-32.

- Tickoo, J.L, and Jain, H.K. 1979. Breeding for high yielding varieties of mung (Vigna radiata (L.) Wilezek) through mutagenesis. In: Proc. symp. Role of Induced Mutations in Crop Improvement. Hydrabad. pp. 198-203.
- Tulmann, N.A., Menten, J.O.M., Ando, A., Costa, A.S. and Alberini, J. 1980. Induced mutations for disease resistance in beans (Phaseolus vulgaris L.) In: Induced Mutations for Improvement of Grain Legume Production. IAEA, Vienna. pp. 89-95.
- Tyagi, D.V.S. and Das, K. 1975. Studies on meiotic system of some barley mutants induced through alkylating agents. Cytologia 40: 253-262.
- Upadhyaya, H.D., Singh, B.B. and Chauhan, K.P.S 1987. Induced polygenic variability in soybean. J. Nuclear Agric. Biol. 16: 120-126.
- Vant Haff, J. and Sparrow, A.H. 1963. The effect of mitotic cycle duration on chromosome breakage in meristematic cells of Pisum sativum. In: Proc. Nat. Acad. Sci. USA. 50: 855-860.
- Vassileva, M. 1978. Induced genetic variability in P. sativum In: Experimental Mutagenesis in Plants. (Sofia), pp. 440-447.
- Wanjari, K.B. and Kutarekar, D.R. 1977. Study of some M_1 parameters in different treatment of gamma rays and chemical mutagens in Sorghum. J. Cytol. Genet. 12: 55-61.

Wolff, G. 1980. Investigations on the relations within the family Papilionaceae on the basis of electrophoretic banding pattern. *Theor. Appl. Gene.* 57: 225-232.

Yamaguchi, H., Tano, S., Tatara, A., Hirai, S., Hasegawa, K. and Hiraki, M. 1974. Mutations induced in germinating barley seed by diethyl sulphate treatment at the interphase. In: *Polypidy and Induced Mutations in Plant Breeding*. IAEA, Vienna. pp. 393-399.

Yang, Q.W., Liang, X.H. and Wang, Y.H. 1989. Studies on the Constituent of Desmodium triquetrum (L) DC. *Acta. Bot.* 31 : 126-131.

Yonezawa, K. and Yamagata, H. 1977. On the optimum mutation rate and optimum dose for practical mutation breeding. *Euphytica* 26: 413-426.

Zeerak, N.A. 1991. Cytogenetical effects of gamma-rays and EMS in Brinjal (Solanum melongena L.). *Cytologia* 56: 639-644.