

LITERATURE CITED

1. Abrams, R. 1975. Status of Research on pigeon peas in Puer to Rico. International workshop on grain legumes. CRISAT pp. 141-147.
2. Ahmad, S.V., Shah, F.H. and Chaudhry, M.S. (1975). Effect of cooking on the essential amino acid content and net protein utilization (NPU) of common pulses. Pak. J. Sci. Ind. Res. 18(3-4): 175-178.
3. Akbar S., Khan, N. A. and Hussain, T. 1973. Amino acid composition and Nutritive value of arhar (Cajanus Indicus) grown in Peshawar region. Pakistan. J. Sci. Ind. Res. 16: 130-131.
4. Ananthraman, K., Carpenter, K. J. and Nesheim, M. C. 1968. The nutritional value of poor proteins fed at high levels. II Species differences. Brit. J. Nutr. 22: 199-205.
5. Anonymous 1974. Recommended Dietary Allowances. 8th ed. Food and Nutrition Board, National Academy of Sciences, National Research Council, Washington, D.C.

6. Anonymous 1978. Inter laboratory comparison of amino acid analysis. In: Seed protein improvement by Nuclear Technique. proc. res. coord. meet. Baden (1977) 27: 95-117.
7. A.O.A.C. 1984. Official Methods of Analysis. 14th ed. Association of Official Analytical Chemists, Washington, D.C.
8. Armando M. L. 1935. Nitrogen partition in three varieties of pigeon peas. Philippine Agri. 24: 481-487.
9. Aron, I. 1972. Crop Production in Dry Regions, Volume II Leonard Hill London. pp. 255-257.
10. Arora, S. K. 1983. Legume Lipids. In: Chemistry and Biochemistry of Legumes pp. 51-109. Oxford & IBH Publishing Co. New Delhi.
11. Bagchi, K. and Choudhury S. 1949. Copper content of some Indian Foodstuffs (Red gram). Ann. Biochem. Exp. Med. 9: 107-112.

12. Baldev, B. Ramanujam, S. and Jain, H.U. 1988. Pulse Crops. Oxford & IBH pp 567-568.
13. Banerjee, S. 1960. Biological value and essential amino-acid composition of the proteins of some pulses. In Symposium on Proteins, Chemical Research Committee and Society of Biological Chemists (India), Mysore, pp. 355-56.
14. Basu, K.P. and Haldar, M.K. 1939. Biological values of proteins of Cicer arietinum and Cajanus indicus by the balance sheet and growth methods. J. Indian. Chem. Soc. 16: 209-218.
15. Bender, A. E. and Doell. B. N. 1957. Biological evaluation of protein; a new aspect. Brit. J. Nutr. 11: 140-148.
16. Benezra, M. V. and Barroeta, M. A. 1953. A priliminary investigation of Quinchoncho (Cajanus indicus). Revta Fac. Agric. Univ. Cent. Venez. 1: 211-215.
17. Bondi, Aron A. 1987. Animal Nutrition. John Wiley and Sons, Inc., New York.

18. Braham, J. E., Rolando, M. N., Richardo, B. and Roberto, J. 1965. The effect of cooking and amino acid supplementation on the nutritive value of the protein of gandul or pigeon pea. *Archivos Venez. Nutr.* 15: 19-32.
19. Bressani, R., Gomez-Brenes, R. A., and Elias, L. G. 1986. Calidad Nutricional de la proteina del gandul tier No y maduro, Y su valor suplementario a los cereales. *Arch. Latino Amer. de Nutrition* 36: 108-116.
20. Carpenter, K. J. 1960. Estimation of available lysine in animal foods. *Biochem. J.*, 77: 604.
21. Casey, R., Sharman, J. E., Wright, D. J., Bacon, J. R. and Chuldager, P. 1982. Quantitative variability in pisum seed globulins: its assessment and significance. *Quantum Plantarum.* 31: 333-346.
22. Chaney, M. S. and Ross, M. L. 1971. *Nutrition.* 8th ed. Houghton, Mifflin Co. Boston. New York.
23. Chatterjee, K. P., Anima Roy and Banerjee. 1956. Essential amino acid composition of pulses and Rice. *Food Research.* 21: 569.

24. Chatterfee, B. N. and Bhatta Cheryya, K. K. 1986.
Principles and Practices of Grain Legume
Production. Oxford & IBH Publishing Co. New
Dehli. pp 424-425.
25. Chavan, J. K., Shere, D. M. Jawale, H. K, and Salunkhc,
D. K. 1983. Effects of soak treatment to
legumes on the cooking quality of resultant
dhal. Indian J. of Nutr. Dietct. 20: 249-254.
26. Chitre, R. G. Desi, D. B., Ganapatty, S. Kumara J. S. and
Marten, A.J.P. 1956. Amino acid composition of
Pulses. Indian J. Med. Res. 44: 573.
27. Coon, C. N., Becker, W. A. and Spencer J. V. 1981.
Feeding high energy diets containing
supplemental fat on broiler weight gain feed
efficiency and carcass composition poultry sci.
60: 1264.
28. Croy, R. R. D., Gate House, J. A. Tybr, M., Boueter, D.
1980. The purification and characteristics of
the storage proteins (Concicillin) from seeds
of pea. Biochem. J. 1919: 509-516.

29. Cristofaro, E., Mottu, F. ad Wulrmann, J. J. 1974. In Sugars in Nutrition, Sipple and McNutt, eds. Academic Press, New York. pp. 313-316.
30. Daniel, V. A., Narayana Sawamy, D. , Desai, B. L. M., Kurien, S., Sawaminathan, M. and Parpia, H. A. B. 1970. Suuplemntary value of varying levels of red gram to poor diets based on rice and ragri. Indian J. Nutr. Dietet: 7: 358-362.
31. Daniel, V. A., Leela, R., Sulramunya, R., Urs, T. S., Venkatarao, S. Rajalakshmt, Swaminathan, M. and Parpia H. A. B. 1965. The supplementary value of proteins and soybean as compared with those of Bengal gram, red gram and skin milk powder to poor Indian diets based on rice and wheat. Indian J. Nutr. Dietet. 2: 128-133.
32. Daniel, V. A., desai, B. L. M., Sulramanya, R., Urs., T. S., Vankantaro, S., Sawaminathan, M. and Parpia, H. A. B. 1968. The suplemintary value of Bengal gram, red gram, soybean, as compared with skim milk powder to poor Indian diets based on ragi, Kaffir corn and pearl millet. Indian J. Nutr. Dietet. 5: 283-291.

33. Datta, S. and Datta, S. C. 1978. Available lysine in cooked pulses. Ind. J. Nutr. Dietet. 15: 128-130.
34. De. D. N. 1974 In Hutchinson, J. ed. Evolutionary Studies in World Crops-Diversity and Change in the Indian Subcontinent. Cambridge University press, Cambridge: pp. 79-88.
35. Deodikar, G. B. and Thakar, C. V. 1956. Cytotaxonomic evidence for the affinity between Cajal indica spreng and certain erect species of Atylosia. Proc. Ind. Acad Sci. 43 B: 37-45.
36. Deosthale, Y. G. and Sankar Rao, D.S. 1981. Mineral and trace element composition of Red gram. Ind. J. Nutr. Dietet. 18: 130-135.
37. Desothole, Y. G. 1984. Food Processing and nutritive value of legumes. In: Puls Production, Constraints and Opportunities. Oxford & IBH Publishing Co. PVT. Ltd. New Delhi pp 377-388.
38. Devdas, R. P., Eagen Mary and Susheela, A. 1968. Effect of supplementation of skim milk and its combination with multipurpose food or red gram

dhal on the nutritional status of children.
Indian J. Nutr. Dietet. 5: 206-214.

39. Derise, N. L., Lan, H. A. Ritchey, S. J. and Murphy, E. W.
1974. Yield, proximate composition and mineral
element content of three cultivars of raw and
roasted peanuts. J. Food Sci. 39: 264-267.
40. Dhingra, P. K., and Das, N. B. 1959. Nutritive values of
pure strains of Indian pulses. Ann. Biochem.
Exp. Med. 19:245-248.
41. Edmar, J.W. 1981. Bioavailability of trace minerals
from cereals and legumes. Cereal Chem. 58: 21-
23.
42. El-Ashwah, E. T., Abdullah, N. M., Hassan, E. M. 1985.
Effect of soaking and cooking on the biological
value of some Egyption legumes. Egtpt. J. Food.
Sci. 13: 133-128.
43. Elias L. G, Crestales F. R., Bressani R. and Miranda H.
1976. Chemical composition and Nutritive value
of some grain legumes. Nutr. Abs. Rev. 47: 864-
66.

44. Esh, G. G., DE, T. D. and Basu, U. P. 1959. Influence of genetic strain and environment on the protein content of pulses. Science 129:148 .
45. Esh, G. G. and Som, J. M. 1952. Nutritional summary on available food materials. Ind J. Phys. Allied Sci. 6:61-70.
46. Evens, R. J. and Bandemer, S. L. 1967. Nutritive value of legumes seed protein. J. Agric. Food Chem. 15: 439-43.
47. FAO, 1957. Protein requirement. Food and Agriculture organisation, U. N. FAO Nutr. Studies No 16, Rome.
48. FAO 1970. Amino acid content of foods and biological data on proteins. Nutritional Studies, No.24, Rome.
49. FAO/WHO. 1973. Energy and protein requirements. Report of a joint FAO/WHO adhoc committee. FAO nutritional meetings report series No.52. WHO technical report series No.522 Food and Agriculture Organization, United Nations, Rome.

50. Fleck, H. 1976. Introduction to Nutrition. 3rd ed. Maemillas Pub. Co. Inc. New York.
51. Fritz, J. C. 1976. Bioavailability of mineral nutrients. Chem. Tech. 6: 643-645.
52. Gale, P. E., Knight, E, M., Adkins, J. S. and Harland, B. F. 1986. Nutritional and organoleptic evaluation of wheat breads supplemented with pigeon pea flour. Cerul Chem. 63: 136-138.
53. Galvao, L. C. A. Lopez, A and Williams, H. L. 1976. Essential mineral elements in peanuts and peanut butter. J. Food Sci. 42: 1305-1307.
54. Geervani, P. and Deriu. 1988. Effect of maturation on Nutrient composition of slected vegetable legumes. J. Sci. Food Agric. 46: 243-248.
55. Geervani, P. and Theophilus, F. 1980. Effect of home processing on the protein quality of selected legumes. J. Food Sci 45: 707-710.
56. Geervani, P. and Theophilus, F. 1981. Evaluation of protein quality of some processed legumes by

nitrogen balance studies on preschool children.
Nutr. Rep. Int. 23: 279-286.

57. Gupta, V. P. and Kapur, A. C. 1980. Chemical evaluation of protein quality of various grain legumes. Indian. J. Agric. Sci. 50: 393-398.
58. Gupta, Y. P. 1988. Nutritive value of pulses. In pulse Crops edited by Baldev, B. Ramanujam, S. and Jain, H. K. Oxford & IBH Publishing Co. PVT. New Delhi.
59. Hackler, L. R. 1977. Methods of measuring protein quality: A review of bioassay procedures. Cereal Chem. 54: 984-995.
60. Haque, I. and Walmlsey, D. 1972. Incubation studies, mineralization of organic nitrogen and sulphur. plant and soil 37: 255-64.
61. Hardallou, S. B., Eltinay, A. H. and Nour, A. A. M. 1980. Chemical Characteristics of Some Legumes grown in the Sudan. Sud. J. Fd. Sci, Tech 12: 35-42.

62. Hardinge, M. G., Swarner, J. B. and Crooks, H. 1965.
Carbohydrates in foods. J. Amer. Diet. Assoc.
46: 197-204.
63. Hernandez, H. H. and Bates, L. S. 1969. A modified
method for rapid tryptophan analysis of maize.
Res. Bull. No.13. Intl. Maize and Wheat
improvement Center, Mexico.
64. Heriwa, R. N. and Major, N. G. (1951). Effect of
autoclaving on the nutritive value of Bengal
gram, dhal arhar and lentil. Curr. Sci. 20:40.
65. Hulse, J. H. 1975. Problems of Nutritional quality of
pigeon pea and chick pea and prospects of
research (1975). International workshop on
grain legumes. ICRISAT. pp 189-207.
66. ICRISAT. 1981. Annual report, International Crops
Research Institute for the Semi Arid Tropics,
Patancheru, Andhra Pradesh, India.
67. Jaffe, W. G. 1950. Biological value of some legumes
important in Venezualen diet. Archos, Venez.
Nut. 1: 107-126.

68. Jambunathan, R. and Singh, U. 1980. Grain quality of pigeon pea. International workshop on pigeon pea ICRISAT, Patanchei, Indian Volume 1 pp. 351-356.
69. Jambunathan, R. and Singh, U., 1980. Grain quality of pigeon pea. Pulse Production, Constraints and opportunities pp. 389-395 Oxford and IBH Publishing Co. PV. Ltd. New Dehli.
70. Jones, D.B. 1931. Factors for converting percentage of nitrogen in foods and feeds into percentage protein U.S.D.A. Circular No.113, Washington, D.C.
71. Jood, Sudesh., Mehta Usha. and Singh, Randhir. 1986. Effect of processing on available carbohydrates in legumes. J. Agric. Food Chem. 34: 417-420.
72. Kadwi, R. S., Thakare K. K. and Badhe, N. N. 1974. A note on the protein content and mineral composition of twenty five varieties of pulses. Indian J. Nutr. Dietet. 11: 83-85.
73. Kanwar, J. S. 1974 Improvement of crops and their relationship to nutrition and Food Science

Technology in the Semi-arid tropics.
Interaction of Agriculture with food Science.
Edited by Machintgre, R., International
Development Research Centre, Ottawa, Canada, pp
53-64.

74. Kapoor, H. C., Grover, H. L. and Gupta, Y. P. 1971.
Effect of variety and location on the quality
of soybean proc. 58th Indian Sci. Cong. Part II
Page 803.
75. Khalil Jeghangir., Sawaya, W. N. and Hussein M.
Al-Mohammad. 1986. Effect of experimental
cooking on the yield and proximate composition
of three selected legumes J. Food Sci. 51: 233-
236.
76. Khan, M. A, Jacobsen, I. and Eggum, B. O. 1979.
Nutritive value of some improved varieties of
legumes. J. Sci. Food Agric, 30: 395-400.
77. Khan, N. A. and Baker, B. E. 1957. Amino acid composition
and nutritive value of Pakistani pulses. J.
Sci. Food Agri. 4:217-220.

78. Khoso, A. W. 1981. Crops of Sind. pp 163-164, Sardar printing press, Hyderabad Sind.
79. Krauss, F. G. 1921. The pigeon pea-its culture and utilization in Hawaii. Hawaii Agric. Exp. STN. Bull. 46: 1-23.
80. Krishna, T. G., Mitra, R. K. and Bhatia, C. R. 1977. Seed globulins of Cajanus Cajan. Qual. Plant 27: 313-325.
81. Krober O. A., Jacob, M. K., Lal P. K. and Kashllary, V. K. 1970. Effects of variety and location on the protein content of pulses. Indian J. Agri. Sci. Volume 40 No.12 pp.1025-1030.
82. Kruss, F. G. 1921. The pigeon pea its culture and utilization in Hawaii, Bull. Hawaii Agri. Exp. Stn. No.46.
83. Kuppuswamy, S. and M. Srinivasan. 1958. Proteins in foods. Indian Council of Medical Research, 26: 35-56.
84. Kurien, P. P., Desilean Char, H. S. R. and Parpia, H. A. R. 1972. Processing and utilization of grain legumes in India. Proceeding of a symposium on

food legumes. Tokyo, Japan. Tropical Agriculture Services No.6, 229.

85. Langer, R. H. M. and Hill, G. D. 1982. *Cajanus*. pp 226- 228. Agricultural plants. University Press, Cambridge.
86. LKB 4101 Amino acid analyser, with LKB 4104 Antomic Sample infector. Biochrome, U. K.
87. LKB 4101 Amino acid analyser, with LKB 4104 automic sample infector. Biochrome, U.K.
88. McDonald, P., Edwards, R. A. and Greenhalgh, J. F. D., 1984. *Animal Nutrition*. 3rd Edition. Longman London P. 285
89. Mahadevappa, V. B. and Raina, P. L. 1978. Nature of some indian legume lipids. *J. Agric. Food Chem.* 26: 1241-1243.
90. Malik, M. Y. 1978. Nutritional evaluation of grams in poultry rations. *Pak. J. Sci. Res.* 31: 63-66.
91. Manimekalai, G., Melagantan, S. and Annapan, R. S. 1978. *Proximal composition and cooking quality*

of some improved varieties of redgram dhal.
Madras Agric. J. 66: 812-816.

92. Meiners, C. R., Derise, N. L., Lau, H. C., Crews, M. G., Ritchey and Murphy, E. W. 1976. The content of nine mineral elements in raw and cooked mature dry legumes. J. Agric. Food Chem. 24:1126-1130.
93. Meister, Alton. 1965. Biochemistry of amino acids. 2nd ed. Academic Press, New York Page 203.
94. Memon, N. A. 1991. Meat: How to fill demand and supply gap. The New (Daily), August 17, 1991. P.16.
95. Mertz, E. T., Batos, L. S. and Nelson, D. E. 1964. Mutant gene that changes protein and increase lysine content of maize endosperm. Science 145: 270-80.
96. Miller, D. S. and Bender, A. E. 1955. The determination of the net utilization of proteins by shortened method. Brit. J. Nutr. 9: 382-388.
97. Miller, G. A. and Lachance, P. A. 1977. Techniques in rat bioassays. (pp 149-161). In: Evaluation of

proteins for humans (C. E. Bodwell, editor).
The AVI Pub. Co. Inc. West Port. Conn.

98. Milner, M. 1972. Nutritional improvement of food legumes by breeding. Proceedings of a symposium sponsored by PAAG of the United Nations System New York.
99. Moore, S. and Stein, W.H. 1963. Chromatographic determination of amino acids by the use of automatic recording equipment. In Methods in Enzymology). Vol. 6. Academic press, New York.
100. Moore, S. 1963. On the determination of cystine as cysteic acid. J. Biol. Chem 238:235-237.
101. Morton Julia, F. 1976. The pigeon pea. A high protein, tropical bush legume. Hort Science Vol 11: 1976.
102. Mosse, J. and Pernollet, J. C. 1982. Storage proteins of legume seeds. In: Chemistry and Biochemistry of legumes seeds by Arora, S. K. published by Edward Arnold pp 111-193.

103. Mtenga, L. A. and Sugiyama, T. 1974. A note on the amino acid composition of some legume seeds grown in Tanzania E. Afr. For. J., 39: 307-310.
104. Murphy, E. W., Criner, P. E., and Gray B. C. 1975. Comparisons of methods for calculating retention of nutrients in cooked foods. J. Agric. Food Chem. 23: 1153-1157.
105. Nagpal, M. L. and Bhatia, I. S. 1971. Tryptophan content of some Indian foods and Feeds. Indian. J. Nutr. Dietet. 8:183-85.
106. Nambi, J. and Gomez, M. 1986. Studies on the nutritive evaluation of pigeon pea as a protein supplement in broiler feeds. Poultry Abst. 12: 565.
107. Narasimha, H. V. and Desikachar, H. S. R. 1978. Objective methods for studying cookability of tur pulse (Cajanus cajan) and factors affecting varietal differences in cooking. J. Food Sci. Technol. 15:47-50.
108. Nelson, N. J. 1944. A photometric adoption of the Somogyi for the determination of glucose. J. Biol. Chem. 153: 375.

109. Niyogi, S. P. Naryana, N. and Desai, B. G. 1932. Studies on nutritive value of Indian vegetable food stuffs. 1. Nutritive value of pigeon pea and field pea. Indian J. Med. Res. 13: 1217-1229.
110. Norton, G., Bliss, F. A. and Bressani, R. 1985. Biochemical and Nutritional attributes of Grain legumes. Grain legume crops, Edited by R. J. summer field and E.H. Roberts Collins, Publishing Co. London pp 73-114.
111. Nwokolo, Emmanuel. 1987. Nutritional evaluation of pigeon pea meal. Plt. Food. Human Nutr. 37:283-290.
112. O'Dell, B. L. 1969. Effect of dietary components upon zinc availability. Am. J. Clin. Nutr. 22: 1315-1325.
113. PAG 1972. Nutritional Improvement of Food Legumes by Breeding. Proc of FAO Symposium. FAO, Rome, July 3-5, 1972.
114. Pande, D. K. and Pant, R. C. 1978. Storage proteins in the seeds of pigeon pea. Seed. Res. 6. 135-140.

115. Pant, R. and Kapur, A. S. 1963. The soluble carbohydrates of some Indian legumes. *Naturwissen chaften*, 59: 95 CA 58 P. 10512 a.
116. Pant, R., and Kapur, A. S. 1963. A comparative study of the chemical composition and nutritive value of some Common Indian pulses and soybean. *Ann. Biochem. Exp. Med.* 23: 457-460.
117. Pant, R., Nair C. R., Singh K. S. Koshti, G. S. 1974. Amino acid composition of some Wild legumes. *Curr. Sci.* 43: 235-239.
118. Patwardhan, V. N. and Ramchandran, M. 1960. Vegetable proteins in nutrition, *Sci. Cult.*, 25: 401-407.
119. Patwardhan, V. N. 1962. Pulses and beans in human nutrition *Am. J. Clin. Nutr.* 11: 12-30.
120. Perkin-Elmer 1982. Analytical methods for atomic absorption spectro photometry. Perkin Elmer Corporation, Norwalk, Connecticut, U.S.A.
121. Phansalkar, S. V., Ramachandran, M. and Patwadhan, V. P. 1957. Nutritive evaluation of vegetable proteins. *Indian J. Med. Res.* 45: 611.

122. Purseglove, J. W. 1968. Tropical crops. Dicotyledons.
Longmans Green and Co. Ltd., London and Harlow.
123. Push Pamma, P., Vimola, V. and Prameeba, D. 1981
Consumption pattern of food legumes in Andhra Pradesh, South India Ecology of Food and Nutrition. 10: 179-185.
124. Rahman, Khalil, J. K. and SHAH, Hamidullah. 1990.
Retention of Selected Nutrients in Cooked kidney beans (Phaseolus Vulgaris, L.). Sarhad J. Agric. Volumes 6. No.6: 547-552.
125. Ranganathan, S. 1938. The available iron in some Indian food stuffs determined by the dipirydine method Indian J. Med. Res. 25: 677-684.
126. Rao, P.S. 1969. Studies on the digestibility of carbohydrates in pulses. Ind. J. Nutr. Diet. 4: 300-306.
127. Rao, P.S. 1969. Studies on the digestibility of Carbohydrates in pulses. Indian J. Med. Res. 57: 2151-2157.

128. Rao, Hanumanthra K. and Subramanian. N. 1969. Essential Amino acid composition of commonly used Indian Pulses by paper chromatography J. Food Sci. Tech. 7:,31-34.
129. Rao, Udayasekhara P. 1981. Effect of Fertilizer application on protein and amino acid contents of pigeon pea. Ind. J. Nutr. Dietet 18: 53-54.
130. Rao, Udayasekhara and Deosthale, Y. C. 1985. Effect of germination and cooking on mineral composition of pulses. J. Food. Sci. Technol. 17: 116.
131. Rao, Udayasekhara, P., and Belavady, B. 1979. Chemical composition of high yielding varieties of pulses. Varietal, locational and year to year differences. Ind. J. Nutr. Dietet 6:440-446.
132. Rao, Sankara, Deosthole, Y. G. 1981. Mineral composition of four Indian Food legumes J. Food. Sci. 46: 245-246.
133. Rattina Swamy, R., Veeras Wamy, R. and Palaniswamy, G.A. 1973. Studies in red gram seed characters, cooking quality and protein content. Madras Agric. J. 60:396-68.

134. Reddy, L. J., Green, J. M., Singh, U., Bisen, S. S. and Jambunathan, R. 1979. Seed protein studies on Cajanus cajan, Atylosia spp. and some hybrid derivatives. Proc. Symp. Seed protein improvement in Cereals and grain legumes. Vol 2 IAEA, Vienna.
135. Richards, L. A. 1954. Diagnosis and improvement of saline and alkali soils. Agric. Hand Book 60. U.S.D.A. Salinity Lab. Riverside, Wash. Dc. pp 158.
136. Richter, G. 1983. Pean (Pisum stivum) as component of mixed feeds for laying hen. Poultry Abst. Volume 9: 1030.
137. Royes, W. V. 1972. Amino acid profile of cajanus cajan protein. Nutritional improvement of food legumes by breeding. Proceedings of a symposium sponsored by PAG, FAO, Rome. pp. 193-196.
138. Salunkhe, D. K., Chavan, J. K. Kadam, S. S. 1986. Pigeon pea as important Food Source, CRC Critical Reviews in Food Science and Nutrition. 23: 103-145.

139. Sankaran, S. and Srinivasan, V. 1963. Evaluation of red gram types for cooking quality. Madras Agric. J. 50: 270-273.
140. Sevilla-Eusebio, Mamaril, J. C. Eusebio, J. A. and Gonzales, R. R. 1968. Studies on Philippine leguminous seeds as protein foods. I. Evaluation of protein quality in some local beans based on their amino acid patterns. Philipp. Agric. 52: 211-217.
141. Shankar, M. Chowdhury, S. L. and Kavitkar, A. G. 1973. Influence of varieties, planting rates, row spacings and fertilizer nutrients on the yield and yield component of pigeon pea. Ind. J. Agric. Sci. 43, 998-1001.
142. Sharma, Y. K., Tiwari, A. S., Rao, K. C., Misra, A. 1977. Studies on Chemical constituents and their influence on cookability in pigeon pea. J. Food Sci. Technol. 14: 38-40.
143. Shaw, F. J. F., Khan, A. R. and Singh, H. 1933. Studies in Indian pulese. The type of Cajanus indicus. Indian J. Agric. Sci. 31:1-36.

144. Shiva Shankar, G. 1984. The function of plant genetic resources in the improvement of nutritional quality with emphasis on activities undertaken by IBGR. In INTERNATIONAL Research and Human Nutrition. International Agricultural Research Institute, Washington, D.C.
145. Shmer, M., Perkins, E. G. 1975. Degradation in methionine in heated soybean protein and the formation of B-methyl mercaptopropionaldehyde. J. Agric. Food Chem. 23: 201-205.
146. Shobhana, P. S. Sangawan, H. S. Nainwatee and Lal, B. M. 1976. Chemical composition of some improved varieties of pulses. J. Food Sci. Tech. Vol. 13 pp 49-51.
147. Shrivastava, S. K. and Bajpai, R. K. 1980. Some chemical characteristics of new varieties of pigeon pea (Cajanus cajan (L) Mill sp. The Ind. J. Nutr. Dietet. 17: 166-170.
148. Shurpalekar, K. S., Sundavaalli, O. E., and Rao, M. N. 1979. In vitro and in vivo digestibility of legumes carbohydrates. Nutr. Rep. Int. 19: 111.

149. Singh, L., Sharma D, Deodar A. D., Sharma, Y. K. 1973. Variation in protein, methionine, tryptophan and cooking periods in pigeon pea (Cajanus cajan L.) Indian J. Agric. Sci. 43: 795-798.
150. Singh, S. Singh, H. D., Sikka, K. G. 1968. Distribution of nutrients in the anatomical parts of common Indian pulses. Cereal chem. 43:13-18.
151. Singh U. and R. Jambunathan. 1982. Distribution of seed fractions and amino acids in different anatomical parts of chick pea and pigeon pea. Plant foods for human Nutrition 31:347-354.
152. Singh, U., Jain, K. C., Jambunathan, R. and Faris, D. G. 1984. Nutritional quality of vegetable. Pigeon peas dry matter accumulation, carbohydrates and protein. J. Food. Sci. 49: 799-802.
153. Singh, U, Jambunathan, R. and Guthru, S. 1981. Seed protein fractions and amino acid composition of some wild species of pigeon pea J. Food. Sci. Tech. 18: 83-85.
154. Singh, Tejender Pal., Soni, G. L. and Singh Rattan. 1977. Biochemical evaluation of the common pulses of

the Punjab state. J. Res. Punjab Agric. Univ. Ludhiana (India) 14: 318-322.

155. Singh, U., Jain, K. C., Jambunathan, R. and Faris, D. G. 1984. Nutritional quality of pigeon peas (Cajanus cajan (L) Mill sp) Mineral and trace elements. J. Food. Sci. 49: 645-646.
156. Singh, D. K., Gupta, Y. P. and Das, N. B. 1960. Effect of amino acids and vitamin B12 on the nutritive value of pulse protein. Ann. Biochem. Exptl. Med. Res. 25:331.
157. Singh, U. and Eggum, B. O. 1984. Factors affecting the protein quality of pigeon pea. Qual. Plant. Plant. Food. Hum. Nutr. 34: 273-284.
158. Singh U., Jambunattar, R., Saxena, K. and Subrahmanyam. 1990. Nutritional quality evaluation of newly developed high protein genotypes of pigeon pea. J. sci. Food Agric. 50: 201-209.
159. Steel, R. G. D. and Torrie J. H. 1981. Principles and procedures of statistics. McGraw Hill Book Co. Inc. New York.

160. Steggerda, F. R. 1968. Ann. N.Y. Acad. Sci. 150:57.
161. Steinke, F. H. 1977. Protein efficiency ratio. Pit falls and causes of variability; A review. Cereal Chem. 54: 949-957.
162. Sudershan, M. Pushpama, P. 1972. The effect of cooking on the protein quality of jowar, bengal gram and ground nut. Reference from International Workshop on grain legumes. ICRISAT (1975) page 216.
163. Taha, F.S. 1987. Chemical studies on pigeon pea protein. Grasas Aceites. 38: 169-172.
164. Tangta W. S. and Elliot, R. 1989. Nutritional value of pigeon pea meal in poultry diets. An. Feed. Sci. Tech. 25: (1-2): 123-135.
165. Tara, M. R., and Rama Rao, M. V. 1972. Changes in essential amino acid content of arhar dhal on dehydiation. J. Fd. Sci. Technal. 9: 76.
166. Tipathi, R. D., Srivasta, G. P., Misra, M. C. and Sinha, S. C. 1975. Comparative studies in the quality

characteristics of early and late varieties of red gram. Indian J. Agric. Chem. pp 57-67.

167. Udebie, A. B. I. and Igwe, F. O. 1989. Dry matter yield and chemical composition of pigeon pea leaf meal and the nutritive value of pigeon pea leaf meal and grain meal for laying hens. Animal feed and Technoly 24: 111-119.
168. Vijayaraghavan, P. K. and Srinivasan, P. R. 1953. Essential amino acid composition of some common pulses. J. Nutrition 51: 261-71.
169. Vijayalakshmi, D., Kurian, S., Narayanaswamy, D., Rao, S.V. and Swaminathan, M. 1972. Blood amino acid studies in the weanling rats on diets containing raw and cooked red gram. Indian J. Nutr. Dietct. 9: 129-134.
170. Visitpanich, T., Batterham, E. S. and Norton, B. W. 1985. Nutritional value of chick pea and pigeon pea meals for growing pigs and rats. II. Effect of autoclaving and alkali treatment. Aust. J. Agric. Res. 36: 337-345.

171. Viswanath, B., Lakshmana, R. J. and Raghunathaswamy, Ayyangar, P. A. 1916. Some factors affecting the cooking quality of dhal (Cajanus cajan) Memoirs of the Department of Agriculture in India (Chemical series) 4:140-163.
172. Whiten, P. C., Byth, D. E. and Wallis, E. S. 1985. Pigeon pea (Cajanus cajan(L.) Mill sp.) Grain Legume Crops pp 658-694.
Edited by R.J. Summer Field and E.H. Roberts
Published by Collins Professional Technical Book. Willian Collins Sons and Co. Ltd, 8 Grafton Street, London.
173. Whitiman, P. C., Byth, D. E. and Wallis, E. S. 1985. Pigeon pea. In Grain legume crops. Edited by Summerfield, R.J. and Poberts E.H. Collins, London pp 656-698.
174. Willey, R. W., Rao, M. R. and Natarjan, M. 1980. Traditional cropping system with pigeon pea and their improvement in proceedings of the International workshop on pigeon peas volume I, ICRISAT, 11-25.

175. W.H.O. 1974. The Health aspect of Food and Nutrition.
2nd Ed. Regional Office for the Western
Pacific, World Health Organization, Manila.
176. Yadav, S. P. 1983. Amino acid composition of Developing
pigeon pea (Cajanus cajan) seeds. J. Agric.
Food Chem. 31: 1360-1362.
177. Yadav, S. P. 1981. In vitro protein digestibility of
cooked and uncooked pigeon pea cultivars.
Tropical legume bulletin No.22. Grain legume
information centre. Ibadan.