

6. LITERATURE CITED

- Abd-Alla, M. H., A.E. El-Enany, A. M. Hamada, and A. M Abdel- Wahab 2001.** Element distribution in faba bean root nodules under salinity and its effects on growth, nodulation and nitrogen fixation. *Rostlinna-Vyroba.* 4:9,399-404 {CAB Abstr.,150: 273 2000-2002}
- Abd El-Aal, S. M. and M. A. Ebiad 1989.** Effect of foliar application of some nutrient compounds on growth, yield and yield components of faba bean (*Vicia faba L.*). *Egypt. J. Agron.* Vol. 14, No. 1-2, pp. 229-239).
- Abd El-Aal, S. M., S. A. Shaaban, H. A. Dawwam, and S. E. Aly 1986.** Effect of foliar nutrition with Nutrin, Irral and Folyfertile on seed and fiber yields of flax. *Minufiya J. Agric. Res.* 11: 81-96.
- Abd El-Aziz, I. M., S. G Awad., M. H. Mahmoud, and A.O. Osman 1987.** Effects of high levels of phosphorus and Zinc application on broad bean (*Vicia faba L.*) grown on calcareous soils. *Annals of Agric. Sci. Ain Shams Univ.*, 32 (2): 1149.
- Abd El-Hadi, A. H., K. G. Asy, H. W. Doering, M. S. Kadr, Y. H. Mohamed, A.A. Moustafa, and M.E. Taha 1986.** Effect of foliar fertilization in different crops under Egyptian condition. *Developments in plant and Soil Sci.* Vol. 22, 126-141.

- Abd El-Hamied, A.M. 1990.** Studies on Intercropping cultivar and planting date of Garlic. Minia J. Agric. Res. and Dev. 12 (2): 1065–1082.
- Abd-El-Hamied, A. S. B. 1990.** Studies on the effect of some growth regulators, macro and micro nutrients on some biochemical, constituents of soybean under the condition of reclaimed soils. Ph. D. thesis. Sci. Soil Depart. Fac. of Agric., Ain Shams Univ.
- Abd EL-Motey, M. Abd– EL- Lateffe 2004.** Studies on productivity of some garlic cultivars under Sinai conditions. M.sc. D. thesis, Fac. Agric. Cairo Univ. 92 pp.
- Abd El-Reheem, M. A., E. N. Gend, and R.M. Awady 1992.** Response of broad bean plants grown in alluvial soils to potassium and zinc application.). Egyptian J. of Soil Sci, 32: 4, 537 – 545 {CAB Abstr. 11: 34, 1993-1994}.
- Abd El-Reheem, Z. S., A. Amberger, and M. M. El-Fouly 1997.** Aldolase, carbonic anhydrase and catalase activity in faba bean leaves as affected by iron and zinc. Egyptian J. of Physiological Sci., publ. 1998, 21: 1, 31-39.
- Abd El-Salam, A.S., M.S. EL-Hakem, and A.A. Etman, 1970.** Submitted to the Bull. Inst. Desert, Egypt.
- Abdrabou, R. T. and M. A. Hamada 1991.** Effect of zinc and phosphorus foliar application on yield and its components of faba bean. Annals of Agric. Sci. Moshtohor., 29: 4, 1325-1331.

Abed, T.A., M. El-Said Zaki, and F.A. Abo-Sedera 1987. Effect of some micro-nutrients foliar spray under salinity stress on peas (*Pisum sativum L.*). I-Vegetative growth and chemical composition of plant foliage. Annals of Agric. Sci. Moshtohor, Vol. 25(2) 1042.

Abed, T. A., I. M. Abd-Alla, and F. A. Abo-Sedera 1987. Effect of some micro-nutrients foliar spray under salinity stress on peas (*Pisum sativum L.*). II – Flowering behaviour, Yield and its quality. Annals of Agric. Sci. Moshtohhor. Vol. 25 (2) 1062.

Abed, T.A., M. El- Said Zaki, and F.A. Abo-Sedera 1988. Effect of irrigation with drainage waters on pea (*pisum sativum L.*). II-Yield and its quality. Annals of Agric. Sc., Moshtohor, vol.26(1)490-499.

Abo Sedera, F. A and Abd El-Hameed 1999. Possibility of using of phosphatic fertilization to ameliorate the adverse of drainage water on growth, chemical composition and dry seed yield of beans. Annals of Agric. Sci., Moshtohor, 37(1): 773-792.

Abou-Elleil, G. A. 1976. Effect of field application of 2, 4 dichlorophenoxybutric acid on yield components of field beans ((*Vicia faba L.*). Agric. Res. Review. 54: 8, 165-170. {CAB Abstr., 6: 34, 1979-1981}.

- Abou-Hamela, A.Z.O.A. 1987.** The effect of some agricultural treatments on yield and quality of garlic (*Allium Sativum L.*). Ph. D. Thesis, Fac. Agric. El- Minia Univ.
- Abu-Awwad, A.M. 1999.** Using drainage water in irrigation and its effect on garlic production. Depart. of Agric. Resources and Environment, Fac. of Agric., Univ. of Jordan, Jordan. Dirasat. Agric. Sci. 26: 2, 257-267.
- Abul-Naas, A. A., A. A. Abdel-Rarry, M. S. Rady, I. I. S. El-Shawaf, and A.A. El-Hosary 1989.** Breeding studies on yield and its components in faba beans (*Vicia faba L.*). Egypt. J. Agron. Vol. 14, No. 1-2, pp. 117-149.
- Acuna, O. and A. Cordero 1989.** Effect of different rates of molybdenum, phosphorus and calcium on nodulation and growth of bean on an Ultisol form Puriscal. Agronomia Costarricense, 13 (2) 193-196. {Hort. Abstr. Vol. 62 No 7 1992, 5778}.
- Adiku, S.G.K., M. Renger, G. Wessolek, M. Facklam, and C. Hecht-Bucholtz 2001.** Stimulation of the dry matter production and seed yield of common beans under varying soil water and salinity conditions. Agric. Water Management. 47: 1, 55-68. {Abstr., 163: 273, 2000-2002}.
- Agwah, E. M. R. and Mahmoud, H. A. F. 1993.** Effect of molybdenum on broad bean. 1- Growth characters. Egypt J. Appl. Sci., 8 (5), 561-586.

- Agwah, E. M. R. 1993.** Effect of zinc, iron and copper on growth and yield of broad bean. Fac. Agric., Cairo Univ. 1-11.
- Akkhavan, Kh. M., W. F. Campbell, J. J. Jurinak, and L.M. Dudley 1991.** Effects of CaSO_4 , CaCl_2 and Nacl on leaf nitrogen, nodule weight and acetylene reduction activity in (*Phaseolus vulgaris* L.) Arid Soil Research and Rehabilitation, 5; 2, 97-103. {Hort. Abstr. Vol. 61 pp. 1294}.
- Al-Jaloud, A. A., A. Hamdy, H. Lieth, M Todorovic, and M. Moschenko 1999.** Use of saline water for irrigation in Saudi Arabia. Halophyte uses in different climates. Proceedings of the 3rd seminar of the EU Concerted Action Group IC 18CT 96-0055 Florence, Italy. Progress in Biometeorology, Volume 14. {CAB Abstr., 80: 273, 1998/08-2000/07}.
- Allen, I. N. 1959.** Experiments in soil bacteriology. Burgess Publishing Co., Minneapolis, Minnesota, U. S. A.
- Al-Mutawa, M. M. 2003.** Effect of nitrogen supply on the response of faba bean to salinity. International J. of Agric. and Biology. 5: 2, 124-128. {CAB Abstr., 191:273, 2002-2003}.
- Al-Tahir, O. A. and M. A. Al-Abdulsalam 1997.** Growth of faba bean (*Vicia faba* L.) as influenced by irrigation water salinity and time of salinization. Agric. Water Management. 34: 2, 161-167.

- Amara, M. A. and Nasr, S. A. 1995.** Impact of foliar application with biofertilizer and micronutrients on the growth and yield of Bradyrhizobium inoculated soybean plants. *Annals Agric. Sci., Ain Shams Univ.*, 40:567-578.
- Amara, M. A. T. 2001.** Impact of foliar application with Molybdenum and Biofertilization on the growth and yield of soybean plants in sandy soil. *Desert. Inst. Bull., Egypt.* 51, No.1, 111-127.
- Andrade, M. J. B.-de., P. E. Alvarenga, J. G. de Carvalho, R. da Silva, and R. De L. Naves 1998.** Effect of nitrogen, rhizobia and molybdenum on growth, root nodulation and nutrient contents in beans. *Revista Ceres.* 45:257, 65-79. {CAB Abstr., 312:560, 1998/08-2000/07}.
- A.O.A.C. 1975.** " Official methods of Analysis of the Association of Official Analytical Chemists." Twelfth Ed. Published by the Association of Official Analytical chemists. Benjamin. Frank line Station, Washington. Dc.
- Ashmawy, F., S. A. S. Mehasen, and M. S. A. Mohamed 1998.** The relative contribution of some characters to seed yield in some faba bean varieties grown under three population densities. *Bulletin of Fac. of Agric. Univ. of Cairo.* 49: 4, 517-532.
- Ashour, N.I. and M. El-Fouly 1974.** Note on the effect of foliar application with micro-elements and growth regulators on

growth, amylase and invertase activity of (*Vicia faba* L.).
Egypt. J. Physiol. Sci., 1 (1): 85-87.

Atia, M. A. 1995. Some of physiological studied on the nutrition of broad bean and rice plants. M. Sc. Thesis, Fac. of Agric., Univ. of Cairo.

Badawy, F.H. and S. El-Tagoury 1977. Responses of pea and broad bean plants to iron, cobalt and zinc. Libyan J. of Agric. 6:2,10-107.

Banuelos, G. S., A. Zayed, and B. Mackey 2002. Growth of faba bean irrigated with saline drainage water. J. of Plant Nutrition. 25: 5, 1101-1114.

Barton, K., G. Pommer, and D. Knoppik 1995. Measurement of gas exchange in faba bean (*Vicia faba* L.) leaves. J. of Agron and Crop Sci. 174:2, 117-124.

Belkhodja, M. 1998. An ionic comportment of faba bean (*Vicia faba* L.) under salt stress. Valladolid, Spain, 14-19 November, 320-321. {CAB Abstr. 103 : 273 1998/08-2000/07}.

Block, R. J., E. L. Durrum, and B. Zweig 1958. A manual of paper chromatography and paper electrophoresis. 2nd Ed. Academic press. Inc. Publishers, New York.

Bolland,-M-D-A., K-H-M Siddique, and R-F Brennan 2000. Grain yield responses of faba bean (*Vicia faba* L.) to applications of fertilizer phosphorus and zinc. Australian J.

of Experimental Agric. 2000; 40(6): 849-857. {CAB Abstr., 1: 65, 2000}

Boughribil, S., M. Lachaal, C. Abdelly, A. Soltani, M. Hajji, J. J. Drevon, and B. Sifi 2003. Implication of the ionic status of nodules for the biological fixation of nitrogen in a saline environment in the bean. Carthage Tunisie, 13-16 octobre Montpellier France, 9-13-juillet 2000. 331-338.

Brhada, F. 1988. Effect of Rhizobium inoculation, lime and addition of molybdenum on the yield of (*Vicia faba* L.). Dordrecht, Netherlands; Martinus Nijhoff Publishers 245-249, ISBN 90-247-3624. (C.F. Hort. Abstr. 59: 7, 5791, 1989).

Broetto, F., E. Malavolta, and O. G. Brasil 1999. Effect of salt stress on polyamine metabolism in bean cell culture. J.of Plant Nutrition. 22: 6, 889-900.

Brown, J. D. and O. Lilliland 1964. Rapid determination of potassium and sodium in plant material and soil extracts by Flame photometer. Proc. Amer. Soc. Hort. Sci., 48: 341-346.

Carbonell-Barrachina, A.A., F. Burlo-Carbonell, and Matrix-Beneyt. 1997. Arsenic uptake, distribution, and accumulation in bean plants: effect of arsenite and salinity on plant growth and yield. J. of Plant Nutrition. 1997, 20: 10, 1419-1430.

- Caruso, P. and F. D'Anna 1995.** Biological and agronomic performance of culinary broad bean cultivars (*Vicia faba* L.). var major Harz. in Sicily. Sementi Elette. 41: 5, 47-53. {CAB Abstr., 88, 105, 1996-1998}.
- Chatj, J., J. R. Dilworth, R. L. Richards, and J. R. Sanders 1969.** Chemical evidence concerning the function of molybdenum in nitrogenase. Nature 224: 1201-1202.
- Chapman, H. D. and P. P. Pratt 1969.** Methods of analysis for soil, plants and water. Univ. of calif. Div. of Agric. Sci. Calif. U.S.A.
- Cordovilla, M. Del. P., A. Ocana, F. Ligeró, and C. Lluch 1996.** Growth and symbiotic performance of faba bean inoculated with *Rhizobium leguminosarum* biovar. *Viciae* strains tolerant to salt. Soil Sci. and Plant Nutrition. 42: 1, 133-140.
- Cordovilla, M. del. P., F. Ligeró, C. Lluch, and M. del-P-Cordovilla 1999.** Effect of salinity on growth, nodulation and nitrogen assimilation in nodules of faba beans (*Vicia faba* L.). Applied Soil Ecology. 11: 1, 1-7 {CAB Abstr., 81:273, 1998/08-2000/07}.
- Cordovilla, M. Del. P., F. Ligeró, and C. Lluch 1999.** Effect of Na Cl on growth and nitrogen fixation and assimilation of inoculated and KNO₃ fertilized (*Vicia faba*) and (*Pisum sativum* L.) plants. Plant Sci. Limerick. 140:2, 127-136.

- Cucci, G., A. de Caro, V. Bianchimano, and A. de Caro 2000.**
Effect of salt stress on bean crop. Irrigazione- Drenaggio.
47: 1, 44-50. {CAB Abstr., 185:273, 2000/08-2002/07}.
- Czuba, R. 1994.** The results of foliar nutrition of field crops. II.
Response of plants to foliar application of trace elements or
nitrogen combined with trace elements. Roczniki-
Gleboznawcze. 1994; 45(3/4): 79-87. {CAB Abstr. 142:
242, 1994}
- Dahdoh, M.S.A., A.H. El-Kadi, and B.I.M. Mooussa 1992.**
Effect of K, Fe and Zn fertilization on broad bean grown on
highly calcareous soil. Desert Inst. Bull. Egypt 42, No.2,
pp307-316.
- Dahdoh, M. S. A. and F.A. Hassan 1997.** Combined effect of
sewage sludge and saline water irrigation on growth and
elements composition of broad bean.. Egypt. J. of Soil
Sci., 37:2, 189-204.
- Dahdoh, M. S. A. 1997.** Iron Manganese Zinc relationships in
broad bean grown in sandy soils Egypt. J. of Soil Sci., 37(4):
499-510.
- Dahdoh, M. S. A. and B. I. M. Moussa 2000.** Zn-Co and Fe-Ni
interactions and their effect on peanut and broad bean plants.
Egyptian J. of Soil Sci., 40: 4, 453-467.
- Dekock, P. C., K. commisiong, V. C. Farmer, and T. H. E.
InKson 1960.** Interrelationships of catalase, peroxidase,
hematite and chlorophyll. Plant Phyyiol., 35: 599-604.

- Delgado-M.J.; F. Ligeró and C. Lluch 1994.** Effects of salt stress on growth and nitrogen fixation by pea, faba bean, common bean and soybean plants. *Soil Biology and Biochemistry*. 26: 3, 371-376. {CAB Abstr. 79 : 273 1993-1994}
- Demir, Y. And I. Kocacaliskan 2003.** Effect of NaCl and proline on bean seedlings cultured in vitro. *Biologia Plantarum*. 45: 4, 597-599. {CAB Abstr., 226:273, 2002/08-2003/10}.
- Devlin, R. M. and F. H. Witham 1979.** Functions of essential mineral elements and symptoms of mineral deficiency. *Plant and physiology* (577 pp).
- Devlin, R. M. 1979.** *Plant physiology* affiliated East-west Press prattled new Delhi Ma 3rd ed., doop.
- Dua, R.P., S. K. Sharma, and B. Mishra 1989.** Response of broad bean (*Vicia faba L.*) and pea (*Pisum sativum*) varieties to salinity. Central Soil Salinity Research Institute, Karnal 132001, Haryana, India. {CAB Abstr., 72; 105, 1990-1991}.
- Dushmukh, V.V. and B.P. Deore, 1990.** Relationship between dry matter and yield in garlic genotypes. *Annals of Plant Physiology*. 1990, 4: 1, 122-123.
- Edris, A. S. A. 1993.** Source and sinke capacity of some field bean cultivars as affected by plant density. *Egypt J. Agron.*, 18 No. 1-2, pp.229-246 (1993).
- Eid, M. A. and M. M. Shereif 1996.** Effect of wastewater irrigation on growth and mineral contents of certain crops

(greenhouse conditions). Egyptian J. of Soil Sci.. 1996, 36: 1-4, 109-118.

Eid, M. A. and A. A. Metwally 1997. Effect of sludge on the availability of heavy metals in sandy soil. 2. Plant uptake in relation to extracted soil Zn, Cu and Ni fractions. Arab Univ. J. of Agric. Sci. 5: 2, 449-466.

El-Asdoudi, A.H. and M.M.F. Abdallah, 1993. Effect of salinity, seed soaking period, media and planting spaces on asparagus. Fac. of Agric., Ain Shams Univ., Cairo, Egypt. Annals of Agric. Sci. Cairo. 1993, 38:1,267-274.

El-Assiouty, F. M. M. 1983. Effect of some micro elements and growth regulators on growth and dry seed yield of Giza 3 common bean cultivar. M. Sc. Thesis, Fac. Agric Moshtohor. Zagazig, Univ. 114 pp.

El-Baz, F. K., E. A. El-Mobde, Z. A. Salama, and A. A. Mohamed 1998. Determination of Fe^{2+} and soluble zinc as biochemical indicators for the diagnosis of iron and zinc deficiency in snap bean (*Phaseolus vulgaris* L.) and faba bean (*Vicia faba* L.) plants. Egyptian J. of Physiological Sci. 22: 1, 25-39.

El-Beheidi, M. A., M. A. I. Khalil, M. H. El- Sawah, A. A. Gad, and M. A. Zaki, 1985. Responses of some garlic cultivars to different levels of nitrogen fertilizer. Zigzag J. Agric. Res. 12 (2) : 65 – 84.

- El-Fouly, M.M., A.H. Firgany, and A.F.A. Fawzi 1983.** Preliminary results on the effect of chelated micro-nutrients on yield of different crops in Egypt. Proc. Conf. New Trends In .Plant Nutrition and Their Impact on Yield Increase. Cairo, Feb, 14, p 1-7.
- El-Fouly, M.M, M. M. Zeinab, A. S. Zeinab, W.J. Horst, M.K. Schenk, A. Burkert, N. Claassen, H. Flessa, W.B. Frommer, H. Goldbach, H.W. Olf, and V. et al. Romheld. 2001.** Micronutrient sprays as a tool to increase tolerance of faba bean and wheat plants to salinity. Fourteenth International Plant Nutrition Colloquium Hannover Germany. 422-423. [CAB Abstr., 151:273, 2000/08-2002/07}.
- El-Hefny, E.M. and Mahmoud, H. A. F. 1999.** Effect of molybdenum and boron foliar spray on growth, yield and quality of some pea cultivars under sandy soil conditions. Annals of Agric. Sc., Moshtohor., Vol. 37(3): 1819-1832.
- El-Hefny, E. M. M. 2002.** Response of broad bean to zinc and manganese under Maryout and Nobarria conditions. J. Agric. Sci. Mansoura Univ., 27 (7): 4449-4465.
- El-Hawary, N. A., M. M. El-Mihi, I. O. Metwally, M. A. El-Masry, and A. S. Kamel 1991.** Influence of intercropping patterns and foliar spray with micro nutrients on growth and yield of faba bean and onion. Annal. Of Agric. Sci. Moshtohor, 29 (2): 669-679.

- El-Hosry, A.A. 1989.** Evaluation of some new varieties of faba bean (*Vicia faba* L.) in Egypt. Egypt. J. Agron.Vol.14, No.1-2, pp.59-68.
- El-Kadi, A. H., M.S.A. Dahdoh, and H.H. Hatem 1990.** Interaction between N, Zn, Cu on yield and protein content of maize grown in calcareous soil. Egypt. J. Appl. Sci, 2: 11-19.
- El-Khalifa, A. M. O., B. E. Mohamed, and A. H. Eltinay 1997.** Amino acid composition of protein fractions of faba bean. FABIS-Newsletter. Publ. 1999, No. 40, 36-40. {CAB Abstr., 336 : 444 1998/08-2000/04}.
- EL-Motaz Billah, M., M. S. Attia, M.G. Abd EL-Gawad, and A.Z. EL-Zamel 1965.** Effect of some fertilization Treatments on Features and yield of Balady garlic. Part III. Conf of the Egyptian Soci. Of Hort., Cairo.
- El-Nagar, S. M. and F. Awad 1987.** Effect of foliar application of iron and zinc on legumes plants grown in new reclaimed area. J. of Agric., Rese. Tanata Univ., 14 (4): 235-240.
- El-Sawah, M. H. 1990.** Study of the effect of ethrel on growth and yield of two garlic cultivars. Zagazig J. Agric. Res. 17 (2) : 403 – 410.
- El-Shouny, K. A., A. M. Esmail, and H. Sanad 1989.** Heterotic performance in three soybeans crosses. Egypt. J. Agron. Vol. 14, No. 1-2, pp. 215-228.

- El-Shakweer, M. H. A., M. A. Farah, and M. A. Barakat 1982.**
Effect of some integrated foliar fertilizers on nodulation, nitrogenase activity nitrogen content and yield of (*Vicia faba* L.) plants in Stalinized soil. Res. Bull. No. 1887. Ain Shams Univ., Cairo, Egypt.
- El-Tinay, A. H., S. O. Mahgoub, B. E. Mohamed, and M. A. Hamad 1989.** Proximate composition and mineral and phytate contents of legumes grown in Sudan. J of Food Composition and Analysis. 2: 1, 69-78.
- Faiyad, M. N. 1995.** Macro and microelements interactions on dry weight and nutrients uptake by faba bean grown in alluvial soils. Egyptian J. of Soil Sci. 35: 3, 283-296.
- Farrag, A.A. 1978.** Salt tolerance studies on broad bean plants using some micro-nutrients. Ph.D. Thesis, Fac. Agric. Cairo Univ. 235pp.
- Farag, A. A., M. M. Hussein, and M.M. Kandil 1983.** Comparative studies on different types of broad bean as affected by zinc and copper application. Proc. First Conf. of Agron., Cairo, 38, 23-35.
- Fawzi, A. F. A., M. M. El-Douly, and A. A. Zayed 1986.** Effect of micronutrients application on faba bean yield. African J. of Agric Sci., 13 (1-2): 111-123.
- Fierotti, G., B. Lo. Cascio, V. Lombardo, and B. Lo. Cascio 1988.** Reflections on soil and crops irrigated with saline water. Agric. Ricerca. 1988, 10: 89, 13-22; 9 ref.

- Firgany, A.H. and K. Troulsen 1983.** Effect of Molybdenum and copper spray and symbiotic nitrogen fixation and dry weight of Broad bean (*Vicia faba L.*). Egypt. J. Bot. vol .26, No.1-3:147-153.
- Francois, L.E. 1994.** Yield and quality response of salt-stressed garlic. Hort. Sci. 1994, 29:11, 1314-1317. USA.
- Frie, E., K. Peyer, and E. Schultz 1964.** Determination of phosphorus by ascorbic acid. Schw. Landwirtschaft Forshung Heft, 3: 318-328.
- Fukuta, N., T. Yukawa, and O. Matumura 2000.** Relationship between the varieties difference in the content of mineral nutrients in leaves under snow cover and morphological characteristics in broad bean. Japanese J. of Crop Sci. 69: 1, 86-91. {CAB Abstr., 2:105, 1998/08-2000/07}.
- Gabal, M. R., I. M. Andellah, I. A. Abed, and F. M. Assiouty 1985.** Effect of Cu, Mn and Zn foliar application on common bean growth, flowering and seed yield. Acta Hort. No. 158, 306-319.
- Gadallah, M. A. A. 1999.** Effects of proline and glycinebetaine on (*Vicia faba L.*) responses to salt stress. Biologia Plantarum. 42: 2, 249-257. {CAB Abstr., 74:273, 1998/08-2000/07}
- Gomaa, M. A. 1991.** The effect of phosphatic and Zinc fertilization on growth and yield of faba bean plant. Annals of Agric. Sci. Moshtohor. 29 (2): 769-780.

- Gorski, M. 1983.** Differentiation of duration of growth period in broad beans according to the variety and the meteorological conditions at Radzikow. Biuletyn Instytutu Hodowli iAklimatyzacji Roslin. No.150, 61- 65. {CAB Abstr., 5: 105, 1984}
- Gough, C. and G. E. Hopson, 1990.** Comparison of the productivity, quality, shelf life characteristics and consumer reaction to the crop from cherry tomato plant grown at different levels of salinity. J. of Hort. Sci. 1990, 65:4,431-439.
- Gowily, A. M. and D. A. Abdel Kader1991.** Effect of Micro elements on incidence of some broad bean diseases. Desert Inst. Bull., A.R.E., 41, No.1,pp. 97-110.
- Hamada, A. M. and A. E. El-Enany 1994.** Effect of NaCl salinity on growth, pigment and mineral element contents, and gas exchange of broad bean and pea plants. Biologia Plantarum. 36: 1, 75-81. {CAB Abstr., 433: 444, 1995}
- Harb E. Z. 1992.** Effect of soaking seeds in some growth regulators and micro-nutrients on growth, some chemical constituents and yield of faba bean and cotton plants. Bull. Fac. Of Agric., Univ. of Cairo. 43: 429-452.
- Hassan El-Sayed Kh. 1985.** Physiological studies on the effect of some growth regulators on (*Vicia faba L.*) under different manurial treatments. M.Sc. Thesis, In Botany Fac. of Agric. Mansuora Univ.

- Hassanein, M.S. 1995** Response of faba bean to phosphorus fertilizer. *Annals of Agric. Sci. Moshtohor* Vol. 33 (3) 987-997.
- Hatem, H. H., M. S. A. Dahdoh, and A. H. El-Adi 1990.** Effect of the interaction between P, Mn and Fe on broad bean grown in calcareous soil. *Egypt. J. Appl. Sci.*, 5, 2:1-10.
- Hegazy, M. H., A. A. Shalaby, A. F. Ebad, and M. S. Khalaf 1981.** Seed protein and Amino Acids composition as a biochemical criterion for the evaluation of some broad bean genotypes. *Research Bulletin Ain Shams Univ.* 1479 .
- Hegazy, M. H., D. N. Abadi, and S. A. Genaidy 1993.** Effect of some micronutrients and methods of application and Rhizobium inoculation on faba bean Egypt .*J. of Agric.*, 71 (1): 21-33.
- Heikal, M. M., A. M. Ismail, and -M.M. Azooz 2000.** Interactive effects of salinity and vitamin B6 on some metabolic processes in two broad bean lines. *Acta Agron. Hungarica*. 48: 4, 327-336.
- Herz, P., Stutzel-H, W. Aufhammer, and A. Scaife 1992.** Adaptation of faba beans (*Vicia faba L.*) to water stress. Warwick Univ. 23-28 August 1992. 86-87 {CAB Abstr., 122: 444 1992}.
- Hossny, B. Sh. 1997.** Response of some faba bean varieties to different agronomic treatments under north coast conditions.

Ph. D. Thesis, Agronomy Depart. Fac. of Agric. Ain Shams Univ.

Hussein, M. M, M. A. Ashoub, and M. A. Rasoul 1984. Organic and amino acid concentrations in broad bean seedlings as affected by salinity and Cycocel. *Annals of Agric. Sci. Ain Shams Univ.*, 29: 1,239-256.

Ibrahim, S.A. 1989. Growth, yield and nutrients uptake responses of pea plants to phosphorus and micronutrients. *Egypt. J. Soil Sci.* 29:3, 251-259.

Ismail, A. M. 1996. Interaction of NaCl salinization and KNO₃ fertilization on physiology of bean plants. *Acta Agronomica Hungarica*. 44: 3, 221-227.

Ismail, A. M. and M. M Azooz 2002. Response of *Vicia faba* to salinity and vitamins. *Indian J. of Plant Physiology*. 7: 3, 298-301.

Jackson, M. L. 1958. " Soil chemical Analysis ". prentice Hall, Inc., Englewood cliffs, new Jersey, P. 498.

Jana, S. K. and N. C. Arkal 1996. Effects of agro-chemicals on growth and yield of garden pea (*Pisum sativum L.*) cv. Arkel. *Environ. Ecol.*, 14: 535-537 (C.F. Hort. Abstr. 50: 390, 1997).

Jalal, Sh.; M. Ramzi, M. S. Ahmed, and J. Shafik 1984. Chemical constituents of some broad bean varieties grown in northern Iraq. *Indian J. of Agric. Sci.*. 54:11, 989-992.

- Jaworska, G. 1994.** Evaluating the suitability of four broad bean varieties for conserving. *Hugona Kollataja Krakowie, Tecnologia Zywnosci.* No. 6, 121-133 {CAB Abstr., 81: 105,1996-1998}.
- Johnson, C.M. and A. Ulrich 1959.** Analytical methods for Use in plant analysis. U. S. Dept. Agric., calif. Univ., Agric., In from. Bull., 766.
- Jyung, W. H., A. Khmann, K. K. Schlender, and J. Scala 1975.** Zinc nutrition and starch metabolism in (*Phaseolus vulgaris* L.) *Plant Physiol.*, 55, 414.
- Kamlesh, S., Kh. Neelam, B. Saroj, K. Saharan, N. Khetarpaul, and S. Bishnoi 2003.** Variability in physico-chemical properties and nutrient composition of newly released rice bean and faba bean cultivars. *J. of Food Composition and Analysis.* 15: 2, 159-167.
- Katerji, N., J. W. van Horn, A. Hamdy, M. Mastrorilli, T. Oweis, W. Erskine, and J. W. van-Hoorn 2001.** Response of two varieties of lentil to soil salinity. *Agric. Water Management.* 47: 3, 179-190. {CAB Abstr., 164:273, 2000/08-2002/07}.
- Katerji, N., J. W. van Hoorn, A. Hamdy, N. Bouzid, S. El-Sayed-Mahrous, M. Mastrorilli, J.W. Van-Hoorn, and S. E. S. Mahrous 1992.** Effect of salinity on water stress, growth and yield of broad beans. *Agric. Water Management.* 21: 1-2, 107-117. {CAB Abstr., 117: 444, 1992}.

- Khadri, M., L. Pliego, M Soussi, C. Lluch, and A. Ocana 2001.** Ammonium assimilation and ureide metabolism in common bean (*Phaseolus vulgaris* L.) nodules under salt stress. Agron. J. 21: 6-7, 635-643.
- Khah, E.M. and H.C. Passam 1992.** Sodium hypochlorite concentration, temperature, and seed age influence germination of sweet pepper. Greece. Hort. Sci., 27: 7, 821-823.
- Khalaf, S. M., M.S. Salem, and M. Mourner 1981.** Performance of some American variety of soybeans in Egypt. Ain Shams Univ. Fac. of Agric. Rese. Bulletin 1480. April 1981, 1-18pp.
- Kotecki, A. 1990.** Effect of molybdenum nutrition application applied to the leaves on yield in pea varieties. Zeszyty Nauowe Akdemii Rolniczej We Wroclawiu, Rolnictwo. 52, 121-132 {C.F. Hort. Abst. 63(10) 7592, 1993.
- Krauze, A., Z. Benedycka, and B. Bardzicka 1989.** Horse bean response to effects of zinc fertilizer in a crop rotation. Acta Academiae Agriculturae Technicae Olstenesis, Agricultura. No.48, 91-98. {CAB Abstr., 13:23, 1990-1991}.
- Kucharaski, J. and T. Niklewska 1992.** The influence of zinc on the yields of broad bean and microbiological activity of soil. J. of Soil Sci., 25. 171- 77.
- Kushwaha, B. L. 1999.** Studies on response of French bean to zinc, boron and molybdenum application. Indian J of Pulses

Research. 12: 1, 44-48. {CAB Abstr.,175:273, 2000/08-2002/07}.

Lahiri, A. N., B. K. Garg, S. P. Vyas, S. Kathju, and P. C. Mali 1996 Genotypic differences to soil salinity in cluster bean. Arid Soil Research and Rehabilitation.10: 4, 333-345. {CAB Abstr., 35:273 1996-1998/07}.

Lisiewska, Z., W. Kmiecik, and P. Gebczynski 1999. Effect of maturity stages on the content of ash components in raw, frozen and canned broad beans. Food-Chemistry. 67: 2, 155-162.

Lopez-Aguilar, R., A. Orduno-Cruz, A. Lucero-Arce, B. Murillo-Amador, and E. Troyo-Diequez- 2003. Response to salinity of three grain legumes for potential cultivation in arid areas. Soil Sci and Plant Nutrition. 49: 3, 329-336.

Lovelli, S., I. Nardiello, M. Perniola, and E. Tarantino 1997. Effect of salinity on growth and photosynthetic activity of bean (*Phaseolus vulgaris* L.). Irrigazione Drenaggio. 1997, 44: 4, 55-59; 14 ref.

Lovelli, S., A. R. Rivelli, I. Nardiello, M. Perniola, E. Tarantino, M. I. Ferreira, and H. G. Jones 2000. Growth, leaf ion concentration, stomatal behaviour and photosynthesis of bean (*Phaseolus vulgaris* L.) irrigated with saline water. Acta-Hort. 2000, No. 537 Vol. (2), 679-686.

- Mahatanya, E. T. 1976.** The effect of phosphorus and copper on the bean plant (*Phaseolus vulgaris* L.) Mysore J. of Agric. Sci. 10:214-225. (C.F. Hort. Abstr. 7:5575, 1977).
- Mahmoud, M. H., I. A. Ibrahim, and M. A. Ashoub 1981.** Mineral nutrition effect on broad bean plant (*Vicia faba* L.). II- Effect of NP- fertilization and molybdenum seed soaking on growth and chemical content. Res. Bull. No. 1442, Ain Shams Univ., Cairo, Egypt.
- Mahmoud, S.A. and D. Y. Al-Ayobi 1987.** Heterotic performance and combining ability in diallel cross among broad bean (*Vicia faba* L.). Annals of Agric. Sci. .Ain Shams Univ., 32;2,1401-1410; 11.
- Mahmoud, H. A. F. and Agwah, E. M. R. 1993.** Effect of molybdenum on broad bean. 2- Yield and protein content.. Egypt J. Appl. Sci. 8 (5), 577-589.
- Majumdar, B., G. S. Nayak, G. S. Rathore, and A. K. Dwivedi 1994.** Response of faba bean to phosphorus, sulphur and zinc nutrition in a black clay vertisol. Dept. of Soil Sci. and Agric. Chemistry, 482004, Madhya, Pradesh, India {C.F. Cab Abstr. 10, 23, 1996}.
- Majumdar, B., G.S. Nayak, and A. K. Dwivedi 2003.** Individual and interaction effect of phosphorus, sulphur and zinc in faba bean growth on a Typic Chromustert. JNKVV-Research-Journal. 2003; 37(2): 8-12. { CAB Abstr., 43 : 65 2003}

- Maksoud, M. A. and I. I. El-Oksh 1983.** Development Growth changes in garlic. Egypt. J. Hort. 10 (2) : 131 – 142.
- Maiti, R. K., V. P. Singh, E. S. Arreola, and Y. S. U. Chirino 2003.** Physiological, biochemical and molecular mechanisms of resistance of Phaseolus bean and other related crops to drought, high and low temperature and salinity Crop Research Hisar. 24: 2, 205-241 {CAB Abstr., 220: 273, 2002/08-2003/10}
- Mandal, S.R., A. K. Mukherjee, S. Pal, and N. N. Mandal 2002.** Comparative response of ricebean and cowpea to S-application in coastal saline zone. J. of Interacademia. 6: 1, 21-24. {CAB Abstr.,239:273, 2002/08-2003/10}.
- Mangal, J.L., R.K. Singh, A.C. Yadav, S. Lal, and U.C. Pandey, 1990.** Evaluation of garlic cultivars for salinity tolerance. J. of Hort. Sci., 65: 6, 657-658.
- Masood-Ali, R Dahan, N. P. Mishra, and J. P. Saxena 2000.** Towards the more efficient use of water and nutrients in food legume cropping. {CAB Abstr. 5: 65, 2000}
- Melesse, T. and K. Caesar 1992.** Stomatal and non-stomatal effects of salinity on photosynthesis in faba beans (*Vicia faba L.*). J.of Agron. and Crop Sci. 168: 5, 345-353.
- Mengel, K. and E. A. Kirkby 1979.** Principles of plant nutrition. Ed. International Potash Institute (Publisher), P. O. Box ch. 3048, Worblauer Leeds.

- Miccolis, C. and V.V. Bianco 1988.** Cultivars and land races trials on broad bean for processing in southern Italy. *Acta Hort.* No.220, 483-492.
- Misra, A. N., B. Murmu, P. Singh, and M. Misra 1996.** Growth and proline accumulation in mungbean seedlings as affected by sodium chloride. *Biologia Plantarum.* 38: 4, 531-536. {CAB Abstr., 38:273 1996-1998/07}.
- Mnembuka, B. V. and B. O. Eggum 1993.** The nutritive value of some selected Tanzanian plant food sources. *Plant Foods for Human Nutrition.* 1993, 44: 1, 1-10. {CAB Abstr., 422: 444, 1995}.
- Mohamed, S. El-Sh. and N. El-R. Hamdiy 1989.** Root distribution, yield and yield components of some faba bean cultivars (*Vicia faba L.*) as influenced by population density. *Egypt. J. Agron.* 14, No. 1-2, pp 81-93.
- Mohammad, Kh., G. D. Sharma, O. P. Nehra, and M. Khabiruddin 1994.** Studies on the performance of seven faba bean genotypes. *Legume Research.* 17: 2, 113-115.
- Mola-Doila, Y. A. A., K. S. Datta, A. Rajiv, D. Jai, B. K. Kumar, and K. Bhuumeesh 1998.** Mineral ion uptake characteristics during boron toxicity under saline condition in broad bean (*Vicia faba L.*). *Plant Physiology and Biochemistry New Delhi.* 25:, 114-121. {CAB Abstr., 1:105 1987-1989}

- Mola-Doila, Y. A. A., K. S. Datta, R. Angrish, B. Kumar, J. Dayal, and P. Kumari 1998.** Salinity and boron effects on nodulation and carbon and nitrogen contents of nodules of broad bean (*Vicia faba L.*). Indian J of Plant Physiology. 3: 4, 279-282 {CAB Abstr., 90:273, 1998/08-2000/07}.
- Monged, N. O., M.S.M. Baza, and T.A. Abo-Eldefan 1992.** Effect of some micro-nutrients on faba bean yield under four governrates in A.R.C. Egypt J. Appl. Sci., 7(4): 579-601.
- Mor, R. P. and H. R. Manchanda 1992.** Influence of phosphorus on the tolerance of table pea to chloride and sulfate salinity in a sandy soil. Arid Soil Research and Rehabilitation. 6: 1, 41-52; 17 ref.
- Moreno-Limon, S., R. K. Maiti, and R. Foroughbakhch 2000.** Genotypic variability in Phaseolus bean cultivars exposed to salinity at the germination stage. Crop Research Hisar. 19: 3, 487-492. {CAB Abstr., 184:273, 2000/08-2002/07}.
- Mourad, A. K, S. A. Hammad, G. Z. Guirguis, O.A. Zaghloul, and H. Sadek 2004.** Action of some micronutrients on the infestation and yield components of faba bean by the aphid, *Aphis craccivora* Koch (Aphididae, Homoptera) and the leaf miner, *Liriomyza trifolii* (Burgess) (Agromyzidae, Diptera). Communications in Agric. And Applied Biolog. Sci. 2004; 69 (3): 291-304

- Moussa, B. I. M. 1992.** Effect of interaction between some macronutrients and zinc on the yield of broad bean grown in calcareous soil. Egypt. J. Of Appl. Sci., 7, 1; 221-233.
- Musakanoc, A. N. 1964.** Effect of trace elements and methods for their application on horse beans. Dokki. Akads Kn, Nauk No. 3, 26-28 . (C.F. Soil and Ferts. 27 P. 449).
- Nalini-Pandey and C. P. Sharma 2000.** Carbonic anhydrase activity and stomatal morphology associated with zinc deficiency-induced changes in faba bean. Phytomorphology. 2000; 50(3/4): 261-265 {CAB Abstr. 16 : 65, 2000}
- Nandini, Ch., M. Subhendu, N. Chakrabarti, and S. Mukherji 2003.** Growth regulator mediated changes in leaf area and metabolic activity in mungbean under salt stress condition. Indian J. of Plant Physiology. 7: 3, 256-263. {CAB Abstr., 233:273, 2002/08-2003/10}.
- Nassar, K.E; A.O. Osman; M.H. El-Kholy, and M.M Badran 2002.** Effect of seed coating with some micronutrients on faba bean (*Vicia faba L.*). II- Effect on yield, yield attributes and mineral composition. Egypt. J. of Soil Sci. 2002; 42(3): 363-381.
- Nayak, G. S.; A. K. Dwivedi, and K. S. Patel 2000.** Phosphorus, sulphur and zinc interactions in relation to yield and nutrient content of faba bean. J. of Soils and Crops. 2000; 10(2): 210-212

- Negm, A.Y., A.M. Abdel-Samad, O. Abdel-Aziz, and A.F.A. Waly 1997.** Yield and some seed constituents of pea as affected by some micronutrients application methods. Egypt. J. Agric. Res, 75:855-867.
- Nurzynska, and R. Wierdak 1997.** Characteristics of winter garlic ecotypes in south-east Poland. II. Chemical composition of garlic bulbs .Agric. Univ. Leszynskiego 58, 20-68 lublin, Poland. Folia-Horticulturae., 9:1, 77-83.
- Ortiz-Cereceres, J., V. E. Solorzano, and L. E. Mendoza-Onofre 1984** Response of agronomic, physiological and technical characters of ten samples of broad bean (*Vicia faba* L.) under different environmental conditions. Agrociencia Mexico. No. 55, 101-114. {CAB Abstr., 44: 105 1984-1986}.
- Palaniappan, R., R.M. Yerriswamy, and L.R. Varalakshmi, 1999.** Germination of seeds early and seedling growth in onion in a saline environment. Agric. Sci. Digest Karnal. 1999, 19: 1, 31-34.
- Pascale, S. De., G. Barbieri, C. Ruggiero, S. De-Pascale, and K. S. Chatzoulakis 1997.** Effects of water salinity on plant growth and water relations in snap bean (*Phaseolus vulgaris* L.). Acta Hort. No. 449, II, 649-655.
- Pascale, S. De., G. Barbieri, and S. De-Pascale 1997.** Effects of soil salinity and top removal on growth and yield of broad bean as a green vegetable. Sci. Hort. 71: 3-4, 147-165.

- Perez, A. F.; M. T. Eston; A. Santa, and M.C. Bolarin 1993.** Effect of salinity and nitrate, total nitrogen, soluble protein and free amino acid levels in tomato plants. J. of Hort. Sci. 68(6):1021-1027.
- Peterburgskii, A. R., V. S. kudrgashov, and E. E. Tornasova 1975.** Comparative studies on the effectiveness of vanadium and molybdenum on the yield, quality and certain physiological processes of legumes physiology, Biokhimiya kul' turnykh Rastenii 7(3) :234-240 (C.F.Hort. Abstr. 46:6, 5778, 1976).
- Petkov-K., Z. Lukaszewski, and I. Jaskowska 1996.** Zinc and manganese in seeds of large seeded legumes. Zeszyty Problemowe Postepow Nauk Rolniczych, 434; 1, 317-321. {CAB Abstr., 7:23 1996-1998}
- Piech, M. and W. Mikulski 1988.** Variation in seed yield components in varieties of broad bean (*Vicia faba* var. minor L.). Biuletyn Instytutu Hodowli Aklimatyzacji Roslin. No. 171-172, 247-252.
- Piech, M. and W. Mikulski 1989.** Evaluation of source material of broad bean (*Vicia faba* L.) for breeding varieties with more stable seed yields. Biuletyn Instytutu Hodowli Aklimatyzacji Roslin. No. 171-172, 247-252.
- Piper, C. S. 1950.** Soil and plant Analysis. Univ. Adelaide 258-275 inter science publishers, Inc. New York.

- Pliego, L., A. Ocana ,and C. Lluch 2003.** Carbon metabolism in nodule cytosol and bacteroid in the symbiosis *Rhizobium tropici* (*Phaseolus vulgaris* var. Africa) under saline conditions. Terra. 21: 2, 203-212..{CAB Abstr., 189: 273, 2002/08-2003/10.}.
- Podme, M., SA. Reddv, and RS. Babu 1989.** Effect of foliar sprays of molybdenum (Mo) and boron (B) on vegetative growth and dry matter production of French bean (*Phaseolus vulgaris* L.). J. of Rese. APAV. 17: 1, 87-89.
- Raafat, A., A.L. Gaber, and A.A. Shalaby, 1984.** Mg⁺⁺ effects on RNA and protein of tomato leaves under saline conditions. Montpellier, France; AIONP 1 GFRDAT: 465-471. (C. F. Hort. Abstr. 56, 9, 7040, 1986).
- Ragheb, H. M., M. A. Gameh, M. H. Nafady, and A. R. Ahmed 2000.** Growth, yield, water use efficiency and nutrients contents of two bean varieties under trickle and sprinkler irrigation regimes in the New Valley. Assiut J. of Agric. Sci. 31: 2, 89-117.
- Raghavaiah, C. V., Y. Muralidharudu, T. J. J. Royal, P. Ammaji, C. Lavanya, and P. Lakshmamma 2002.** Influence of salinity stress on germination and early growth of castor (*Ricinus communis*) genotypes. Indian J. of Agric. Sci. 72: 10, 601-603. {CAB Abstr., 194: 273, 2002/08-2003/10}

- Ramanjulu, S. and C. Sudhakar 1997.** Drought tolerance is partly related to amino acids accumulation and ammonia assimilation. A Comparative Study in two mulberry genotypes differing in draught Sensitivity. J. plant physiol., 150:345-350.
- Raptan, P. K., A. Hamid, Q. A. Khaliq, A. R. M. Solaiman J. U. Ahmed, and M. A. Karim 2001.** Salinity tolerance of blackgram and mungbean. II. Mineral ions accumulation in different plant parts. Korean J. of Crop. Sci., 46: 5, 387-394.
- Rashad, M. H. and A.H. Ahmed 1997.** Physiological studies on the effect of iron and zinc supplies on faba bean plant. J. Agric. Sci. Monsoura Univ., 22 (3): 729-743.
- Richards, L. F. 1954.** Diagnosis and Improvement of Saline and Alkaline Soils. Agric. Hand Book, U. S. A. (60).
- Rizk, W.M. and F.A. Abdo 2001.** The response of two mung bean cultivars to Zinc, Manganese and Boron. II. Yield and chemical composition of seeds. Bull. Fac. Agric. Cairo Univ., 52: 467-478.
- Ruiz, V. V. M., E. M. Ortega, H. V. A. Gonzalez, H. J. J. Martinez, and P. J. L. Rone 1998.** Responses of common bean to sulfatic-hydrochloric salinity. I- Biomass and grain yield production. Revista Fitotecnia Mexicana. 20: 1, 13-27 {CAB Abstr., 87:273, 1998/08-2000/07}
- Saad, A. O. M., G. M. Yakout, and A. T. Thalooth 1980.** Effect of method of phosphorus application and spraying with

micronutrients on broad bean. Egyptian J. of Agron. 5: 2,109-118.

Saad, A. O. M., A. T. Thaloorth, and T. A. Nour 1989. Yield and quality by Time of Gypsum application and foliar nutrition with Mo and Zn. Egypt. J. Agron. Vol. 14, No. 1,2 pp. 13-19.

Saadallah, K., C. Abdelly, J. J. Drevon, J. J. (ed.) Drevon, and B. Sifi 2003. Biological nitrogen fixation under saline conditions and phosphorus deficiency in two bean varieties. {CAB Abstr.207:273,2002/08-2003/10}

Sakal, R. R. B. Sinha, A. P. Singh, and N. S. Bhogal 1998. Response of some rabbi pulses to boron, zinc and sulphur application in farmer's field. Fertilizer News. 43: 11, 37, 39-40. {CAB Abstr., 7:105, 1998/08-2000/07}

Sakr, M. M., H. M. Abd-El-Mottaleb, and E. A. Ali 1996. Effect of spraying iron and zinc on botanical, chemical characters, yield and its components of (*Vicia faba L.*). Annals of Agric Sci. Moshtohor. 34: 4, 1457-1477.

Saini, J. P. and S. C. Negi 1998. Effect of cultivar and date of sowing on growth and yield of French bean (*Phaseolus vulgaris*) under dry temperate condition. Indian J of Agron.. 43: 1, 110-113.{CAB Abstr., 99 : 273 ,1998/08-2000/07}

Salam, A. S.A. A. 1998. Effect of soil and foliar application of nitrogen in combination with zinc on the biomass yield and

grain quality of faba bean grown on lacustrine soil. Alexandria J of- Agric. Res., 43:1, 129-139.

Saleem, Saadia, Ch. M., H. Mumtaz, and A. Irfan 2003. Alleviation of salinity stress using Bio-Power (biofertilizer) in mung bean (*Vigna radiata* L. Wilczek). International J. of Agric and Biology. 5: 2, 191-193.

Sallam, H. A. 1999. Effect of some seed-soaking treatments on growth and chemical components on faba bean plants under saline conditions. Annals of Agric. Sci. Cairo. 44: 1, 159-171.

Santana, M. J. de., J. de-A. Carvalho, M.J.B. de Andrade, E.L. da Silva, J. de A. Carvalho, M.J.de-Santana, M.J.B. de Andrade, and E.L. da-Silva- 2003. Development of the bean plant (*Phaseolus vulgaris* L. cv. ESAL 686) under different irrigation water salinity levels. IRRIGA. 8: 1, 29-36. {CAB Abstr., 256:273, 2003/11-2004/07}

Saxena, H.J. and O. N. Mehrotra 1984. Effect of boron and molybdenum in presence and absence of phosphorus and calcium on ground nut. Int. J. Of Agric. Res. 18 (2), 91-94.

Schafferman, D., E. Ben-Moshe, Y. Elbar, and M. Zur 1994. Trils with broad bean varieties (*Vicia faba* L.). Hassadeh.74: 7, 730-733, 48. {CAB Abstr., 87:105, 1996-1998}

Scheybal, S. 1988. Crude protein content in seeds of broad bean (*Vicia faba* L.). 1. Variability of crude protein content and its

- causes. Archiv fur Zuchtungsforschung. 18: 3, 149-158
{CAB Abstr., 99: 105, 1987-1989.
- Schmidhalter, U. 1985.** Effects of salinity and various other factors on carrot germination. Revus de Viticulture, d'arbariculture et d, Hort 17, (6): 377-380.
- Scholberg, J. M. S. and S. J. Locascio 1999.** Growth response of snap bean and tomato as affected by salinity and irrigation method. Hort. Sci. 34: 2, 259-264.
- Scigalska, B. 1992.** Yields of faba beans in mountain conditions as affected by cultivar and planting density. Zeszyty Naukowe Akademii Rolniczej im Hugona Kollatajaw Krakowie, Sesja Naukowa. 32: 260, 291-301; 6 .
- Seliga, H. 1998.** Nitrogen fixation in several grain legume species with contrasting sensitivities to copper nutrition. Acta Physiologiae Plantarum. 20: 3, 263-267. {CAB Abstr.,224 : 273 , 1998/08-2000/04 }.
- Shaheen, A. M. 1984.** Growth analysis and photosynthetic pigments of broad bean (*Vicia faba L.*) plant in relation to water stress and GA application. Beitrage Zur Tropischen Landwirtschaft und Veterinarmedizin .22: 3, 263-268. {CAB Abstr. 28:105, 1984-1986}.
- Shafik, J. 1985.** Comparative study of nine varieties of broad beans. Pakistan J. of Agric. Rese., 6:1, 12-19 .

- Shafik, J., M. S. Saed, and M. Mustafa 1988.** Effect of between row and plant spacing on some growth characters, yield and its components in two broad bean varieties. *Mesopotamia J. of Agric.* 20: 2, 231-249 {CAB Abstr., 89:105, 1997-1999}
- Shafshak, Nadia, S. 1989.** Response of broad bean to irrigation frequency with drainage water under different levels of phosphorus fertilizer. *Annals of Agric. Sci., moshtohor*, vol. 27(3), 1792- 1989.
- Sharaf, A.R., M. Kh. Sohair, A. M. El-Gizawy, and F. A Rizk 1988.** Evaluation of some soybean varieties under the Egyptian conditions. 1- Plant growth and yield. *Desert Inst. Bull.* 38, No. 2, pp. 307-320.
- Sharma, S. K. 1995.** Effects of salinity on growth performance and internal distribution of Na^+ , K^+ and Cl^- in (*Vicia faba L.*). *Indian J. of Plant Physiol.* 38: 1, 69-72..
- Sheheta, A.A. and A.A. Farrag 1983.** Effect of potassium under specific conditions on yield and chemical compositions of broad bean seeds. *Egyptian J. of Soil Sci.* 23: 3,293-303.
- Sibole, J. V., E. Montero, C. Cabot, C. Poschenrieder, and J. Barcelo 1998.** Role of sodium in the ABA mediated long term growth response of bean to salt stress. *Physiologia Plantarum.* 104: 3, 299-305.{CAB Abstr., 97:273, 1998/08-2000/07}.
- Siddiqui, S.; K. Gupta; A. Yadav, and J. L.Mangal 1996.** Soil salinity effect on soluble saccharides, phenol, fatty acid and

mineral contents, and respiration rate of garlic cultivars. India. Biologia-Plantarum., 38:4,611-615. (C.F. CAB Abstr. 1997)

Sillanpaa, M. 1972. Trace elements in soils and agriculture, FAO. Soils Bull., (17).

Singh, J. P., R. E. Karamanos, N. G. Lewis, and J.W.B. Stew. Art 1986. Effectiveness of zinc fertilizer sources on nutrition of beans. Canadian J. of Soil Sci.66(1)183-187{Hort. Abs.1986 vol.56No.8.}

Singh, V.B., T.D. Singh, R.P. Mehta, and V. Singh, 1992. Effect of graded doses of potassium and Zinc on yield and their uptake by pea. J. potassium Res., 8: 144-147.

Singh, V. and V. Singh 1993. Iron-Zinc relationship in pea Ann. Agric. Res., 14: 497-499.

Srivastava, T. K. and I. P. S. Ahlawat 1995. Response of pea (*Pisum sativum L.*) to phosphorus, molybdenum and biofertilizers. Indian J. of Agron. 40 : 4, 630-635.

Srivastava, T. K., I.P.S. Ahlawat, and J.D.S. Pan war 1998. Effect of Phosphorus, molybdenum and biofertilizers on productivity of pea (*Pisum sativum L.*). Indian J. of Plant Physiol. 3:3, 237-239; 6 refs.

Stepanok, V.V. and S.P. Golenetskii 1991. Effect of copper compounds on yield and element composition of agricultural crops. Agrokhimiga. 8; 87-95.

- Steven, A.C., M. Michael, and T. Thomas 1989.** "Manual of Advanced Techniques for Amino Acid Analysis". The PICO. Tag method, Millipore Cooperation, USA, 4189 WMO2, Rev. I. U.S.A.
- Strogonov, B. P. 1960.** Physiological basis of salt tolerance of plants as affected by various types of salinity. Izdatel'stvo Akademii nauk, sssr, moskva, 279 PP.
- Tammam, A. A. 2003.** Response of *Vicia faba* plants to the interactive effect of sodium chloride salinity and salicylic acid treatment. *Acta Agronomica Hungarica*. 51:3,239-248
- Thalooth, A.T.,G. M. Yakout, and A. O. M. Saad 2001.** Response of broad bean (*Vicia faba*) to method of phosphorus application and foliar application of micronutrients. International-Plant-Nutrition-Colloquium,-Hannover,-Germany. 2001; 794-795. {CAB Abstr. 30 : 65 2001}.
- Thomas, M.L. and F.J. Hills 1975.** "statistical Methods In Agric. Research ". Univ. of California, Davis 956162 d printing, p. 67- 74.
- Treutner, R., R.M. Jakovsky, J. Hubacek, A. trk, and S.K. vascka 1980.** A contribution to the chemotaxonomy of garlic (*Allium sativum*). Sborink UVTIZ . Zahra dnectvi, 7 (2):135-144.(C. F. Hort. Abstr., 52, 174, 1982).

- Tyurin, Yu. S. and V. F. Sidorova 1982.** Breeding fodder broad beans for earliness. Seleksiya I-Semenovodstvo, USSR. No.4, 11-12. {CAB Abstr., 31:105, 1984.}
- Ulukan, H., M. Guler, and M. S. Adak 2002.** Effect of zinc fertilization on yield and quality of faba bean (*Vicia faba*). Indian J. of Agric. Sci. 2002; 72(12): 742-744
- Upadhyay, A., N. G. Mitra, and B. Sachidanand 1998.** Mineral nutrient composition in cultivars of *Vicia faba* relative to *Glycine max*. Advances in Plant Sci. 11: 1, 147-152 {CAB Abstr., 226: 273, 1998/08-2000/04}
- Wali, A. A., F. A. Taher, M. E. Yousef, and A. Mandour 1990.** Evaluation of growth and productivity of three faba bean (*Vicia faba L.*) cultivars tested under sprinkler irrigation system. FABIS-Newsletter. No. 26, 27-29. {CAB Abstr., 33: 444, 1990-1991}
- Wang, S.; C.Wan; Y. Wang; H. Chen; Z. Ztou, and E.R. Sosebookee 2004.** The charactrestic N^+ and K^+ and free praline distribution in several drought-resistant plants of the ALXA Desert, China, J. of Arid Environment, 56(3):525-539.
- Wignarajah, K. 1990.** Growth response of *Phaseolus vulgaris* to varying salinity regimes. Environmental and Experimental Botany .30,2; 141-147.

- Xia, M. Z. and F. Q. Xiong 1991.** Interaction of molybdenum, phosphorus and potassium on yield in (*Vicia faba L.*). J. of Agri Sci. 117: 1, 85-89.
- Xia, M. Z., F. Q. Xiong, M. C. (ed.) Saxena, S (ed.) Weigand, and L. J. Lang 1993.** Preliminary study on the physiological basis for yield increase of faba bean by fertilizer application. Faba bean production and research in China: Proceedings of an International Symposium, Hangzhou, China, 24-26 May 163-168. {CAB Abstr., 165: 444 1993-1994}.
- Yadava, U. L.1986.** A rapid and none destructure method to determine chlorophyll in intact leaves. Hort. Sci., 21: 1449-1450.
- Yadav, S.S., Singh, Narendra, B.R. Yadav, and N. Singh 1998.** Effect of different levels of soil salinity on growth and yield of onion (*Allium cepa*). J. of Hort. 55:3, 243-247.
- Yakout, G.M., N. O. Saad, M. Ashour, and N. I. Thnoot 1981.** Growth and yield response of soybean to foliar nitrogen with Mo and Cu under different levels of nitrogen fertilizer. Res. Bull. Fac. Of Agric. Ain Shams Univ. No. 1510, 20 pp.
- Younis, M. A., M. K. Abid, and R. F. Hamoudi 1985.** Effect of varietal differences on growth, reproduction and survival of black broad bean aphid *Aphis fabae* Scopoli (Homoptera Aphidae). Iraqi J. of Agric. Sci. "Zanco". 3 : 1 , 10 -15.

- Younis, M. E., W. M. Shukry, and M.A.M. El-Nimr 1999.** Plant growth, metabolism and adaptation in relation to stress conditions. XX. Comparative effects of salinity on growth, metabolism and yield of three different bean plants. Egyptian J. of Physiological Sci. 1999, 23: 1-2, 99-122.
- Yousef, S. A. and I. S. Al-Saadawi 1997.** Effect of salinity and nitrogen fertilization on osmotic potential and element accumulation in four genotypes of broad bean (*Vicia faba* L.). Dirasat. Agric. Sci. 24: 3, 395-401
- Yousef, S. A., I. S. Al-Saadawy, and A.Y.N. Alla 1999.** Effect of salinity and nitrogen fertilization on nitrate reductase activity in local cultivar of broad bean (*Vicia faba* L.). Dirasat. Agric. Sci. 26: 1, 144-150.