ROLE OF SULPHUR IN OILSEED CROPS: A REVIEW

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Abstract: India is largest producer and consumer of vegetable oil in the world. Oilseeds have been the backbone of agricultural economy of India since long. Oilseed crops are primarily grown for edible oil. Sulphur is an important nutrient for the higher yield and quality of oilseed crops. Sulphur plays a remarkable role in protein metabolism. It is required for the synthesis of proteins, vitamins and chlorophyll and also sulphur containing amino acids such as cystine, cysteine and methionine which are essential components of protein. Among the sulphur supplying sources, gypsum and elemental sulphur are being abundantly used in sulphur deficient soils. Use of high analysis sulphur free fertilizers, heavy sulphur removal by the crops under intensive cultivation and neglect of sulphur replenishment contributed to widespread sulphur deficiencies in arable soils. Due to Sulphur Deficiency, plants leaves becomepale green, yellowish green or complete yellowcolouration. The leaves are smaller and narrower and stem growth is affected.

Keywords: Sulphur, Growth, Oilseed, Quality

REFERENCES

Anonymous (2018). Agricultural statistics at a glance, Government of India, Ministry of Agriculture & Farmer Welfare, Department of Agriculture, Cooperation & Farmers Welfare, Directorate of Economics & Statics.

Aulakh, M.S. and Pasricha, N.S. (1988). Sulphur fertilization of oilseeds for yield and quality. Proc. TSI-FAI Symposium on Sulphur in Indian Agriculture, New delhi, India. SII/3: 1-14.

Bandopadhyay, P. and Samui, R.C. (2000). Response of groundnut (*Arachis hypogaea* L.) cultivars to levels and sources of sulphur in west Bengal. *Ind. J. Agron.* 45(4): 761-764.

Banu, R., Shroff, J.C. and Shah, S.N. (2017). Effect of sources and levels of sulphur and bio-fertilizer on growth, yield and quality of summer groundnut. *Int J Agr Sci.* 13(1): 67-70.

Chaubey, A.K., Singh, S.B. and Kaushik, M.K. (2000). Response of groundnut (*Arachis Hypogaea* L.) to source and level of sulphur fertilizer in mid-western plains of Uttar Pradesh. *Ind. J.Agron.* 45(1): 166-169.

Chaudhry, I.A. and Cornfield, A.H. (1966). The Determination of Total Sulphur in soils and plant material. *Analyst.* 91: 528-530.

Dutta, D. and Patra, B.C. (2005). Response of groundnut (*Arachis hypogaea* L.) to sources and levels of sulphur fertilization in alluvial soils of West Bengal. *J.interacademicia.* 9(1): 45-48.

Dhage, S.J., Patil, V.D. andPatange, M.J. (2014). Effect of various levels of phosphorus and sulphur on yield, plant nutrient content, uptake and availability of nutrients at harvest stages of soybean (Glycine max L.). *IJCMAS.* 3(12): 833-844.

Fismesa, J., Vong, P.C., Guckert, A. and Frossard, E. (2000). Influence of sulphur on appearant N use efficiency, yield and quality of oilseed rape (*Brassica napus* L.) grown on a calcareous soil. *Euro.J.Agron.* 12(2): 127-141.

Gangadharan, G.A. (1990). Effect of S on yield, oil content of sunflower and uptake of micronutrients by plants. *J. Ind. Soil. Sci. Soc.* 38: 692-695.

Jat, R., Naga, S., Choudhary, R. and Mohammad, I. (2017). Effect of Potassium and Sulphur on Quality of Sesame (*Sesamum indicum* L.). *IJCMAS.*6(4): 1876-1878.

Kale, M.R. (1993). Effect of sulphur on growth and yield of groundnut. *Indian J. Agron.* 38(3): 504-505.

Kanwar, J.S. and Mudahar, M.S. (1986). Fertiliser Sulphur and Food Production. MartinusNijhoff/Dr. W. Junk Publisher, Dordrecht: 247p.

Kanwar, J.S., Nijhawan, H.L.and Raheja, S.K. (1983). Groundnut Nutrition and FertilizerResponses in India. ICAR New Delhi: 185p.

Naiknaware, M.D., Pawar, G.R. and Murumkar, S.B. (2015). Effect of varying levels of boron and sulphur on growth, yield and quality of summer groundnut (*Arachis hypogea* L.).*Int J Trop Agric*. 33(2): 471-474.

Noman, H., Rana, D.S. and Rana, K.S. (2015). Influence of Sulphur and zinc leveland zinc solubilizer on productivity, economics and nutrient uptake in groundnut (*Arachis hypogaea* L.). *Indian J. Agron.* 60(2): 301-306.

Parmar, N.N., Patel, A.P. and Choudhary, M. (2018). Effect of Sources and Levels of Sulphur on Growth, Yield and Quality of Summer Sesame under South Gujarat Condition (*Sesamum indicum* L.). *IJCMAS*,7(2): 2600-2605.

Pasricha, N.S., Aulakh, M.S., Bahl, G.S. and Baddesh, H.S. (1987). Nutritional requirementof oilseed and pulse crops in Punjab. Department of Soils., PAU, Ludhiana.

Pasricha, N.S., Aulakh, M.S., Sahota, N.S. and Baddesh, H.S. (1988). Fertilizer use research inoilseed crops. *Fert. News.* 33(9): 15-22.

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Patel, P K., Viradiya, M.B., Kadivala, V.H. and Shinde, R.D. (2018). Effect of potassium and Sulphur on yield and quality of summer groundnut (*Arachis hypogaea* L.) under middle Gujaratcondition. *IJCMAS*.7(9): 2268-2273.

Patil, S.S., Choudhary, A.A., Goley, A.V. and Rasal, S.J. (2014). Effect of phosphorus and sulphur on growth yield and economics of linseed. *J. Soils Crops*, 24(1):159-164.

Patra, AK., Tripathy, S.K. and Samui, R.C. (1995). Response of groundnut (*Arachis hypogeaL.*) to sulphur. *Indian J. Agric. Sci.* 65(80): 597-598.

Rao, K., Rao, T., Upendra, A. and Sekhar, D. (2013). Effect of Sources and Levels of Sulphur on Groundnut. *J. Acad. Ind. Res.* 2(5): 268-270.

Scherer, H.W., Pacyna, S., Spoth, K.R. and Schulz, M. (2008). Low levels of ferredoxin, ATP, and leghemoglobin contribute to limited N_2 fixation of peas (*Pisum sativum* L.) and alfalfa (*Medicago sativa* L.) under S deficiency conditions. *Bio-fert soils*. 44: 909-916.

Singh, A.L. (1999). Mineral nutrition of groundnut. *In: Advances in plant physiology scientific publisher, Indai.* 2: 161-200.

Singh, A.L. and Chaudhari, V. (1997). Sulphur and micronutrient nutrition of groundnut in acalcareous soil. *J. Agron. Crop Sci.* 179: 107-114.

Tandon, H.L.S. (1991a). Sulphur Research and Agriculture Production in India 3rd editionFDCO, New Delhi, India.

Tandon, H.L.S. (1991b). Secondary and micronutrients in Agriculture-GuideBook-cum-Directory. 2ndEd. FDCO, New Delhi, India: 122 pp.

Tiwari, K.N., Dwivedi, B.S. and Pathak, A.N. (1984). Evaluation of iron pyrites as sulphur fertilizer. *Fer. Res.* 5: 235-243.

Williams, C.H. and Steinbergs (1959). Soil sulphur fraction as chemical indices of available sulphur in some Australian Soils. *Aus. J. Agric. Res.* 10: 340-352.