

EFFICIENCY OF INTEGRATED USE OF ACIDULATED ROCK PHOSPHATE (PROM) FYM AND BIO-FERTILIZER ON GROWTH AND YIELD OF FENUGREEK (*TRIGONELLA FOENUM-GRACEUM* L.) AND AVAILABILITY OF PHOSPHORUS

P.R. Raiger*, H.S. Purohit* , M.K. Jatav** , M.K. Meena

*Department of Agri. Chem. & Soil Sc., MPUAT, Udaipur-313001 (Rajasthan)

**Crop Production, Central Potato Research Institute, Shimla (HP) 171001

*prahlad.raiger2011@gmail.com

Abstract : A field experiment was conducted during *rabi* season of year 2002-03 to find out the effects different source of phosphorus and integrated use of PROM (phosphorus rich organic matter) @ 75, 100 and 125 % of recommended dose of phosphorus, i.e., 30, 40 and 50 kg P₂O₅ ha⁻¹ along with inoculation of PSB + *Rhizobium*, FYM @ 2, 4 and 6 t ha⁻¹ applied only with 75% PROM, i.e., 30 kg P₂O₅ ha⁻¹, 40 kg P₂O₅ ha⁻¹ through DAP and SSP on growth character (plant height, dry matter accumulation, number and weights of nodules), yield parameters of Fenugreek and availability of phosphorus in soil after post harvest analysis of soil. The application of P₂O₅ up to 50 kg ha⁻¹ through PROM @ 125% + PSB + *Rhizobium* with recommended dose of significantly increased plant growth character, yield and available phosphorus after harvesting of Fenugreek but it was at par with PROM @ 100% P₂O₅ of recommended dose + PSB + *Rhizobium*, PROM @ 75% P₂O₅ of recommended dose + FYM @ 6 t ha⁻¹, recommended dose of P through DAP and recommended dose of P through SSP as compared to remaining treatments.

Keyword: Fenugreek, acidulated rock phosphate, FYM, bio-fertilizer, growth, yield and available phosphorus.

REFERENCES

- Ameta, V.** (2002). Utilization of high grade rock phosphate for soybean [*Glycine max* (L.) merril] production through Acidulation. M.Sc. (Ag.) Thesis, MPUAT, Udaipur (Raj.).
- Antarikanonda, P., Sassanarkkit, S., Amaret, P., Waiamai, P., Kinonita, S. and Bhumiratana, A.** (1990). Biological system for improving availability of rock phosphate to plants. NRCT, NUS, DOSTJSPS Joint Seminar on biotechnology held at songkla, Thailand and Singapore, Dec. 22-26, 1990. pp. 612-619.
- Gaur, A.C.** (1990). Phosphate solubilizing micro-organism as biofertilizers. Omega Scientific Publishers, New Delhi.
- Kamble BM, Shirke MS, Chougule B.A.** (2006). Effect of organic – inorganic fertilizers on groundnut –wheat cropping sequence. *Indian J Environ and Ecoplan* 12: 133-136.
- Masih, M.R., Chandradeo and Pareek, D.K.** (2000). Studies on utilization of composted HGRP in groundnut crop growth on loamy sand soils. *PROM Review-2001. Phosphate Research and Centre, RSMML, Udaipur*, pp. 65-68.
- Metha, Y.K., Verma, A.K. and Shaktawat, M.S.** (2003). Use of rock phosphate as a phosphatic fertilizer. *PROM Review-2003, Phosphate Research and Development Centre, RSMML, Udaipur*. pp. 137.
- Olsen, S. R., Cole, C.V., Watanable, F.S. and Ean, L.A.** (1954). Estimation of available phosphorus in soil by extraction with sodium bicarbonates. *U.S. Deptt. Agric. Circ.* 993 : 1-19.
- Saravanane P, Najappa HV, Soumya T.M.** (2006). Allelopathy for sustainable agriculture. *Kisan World* 33: 58-59.
- Shankaralingappa, B.L., Brahmprakash, G.P. and Krishnegowda, K.T.** (2002). Integrated phosphorus management in pigeonpea (*Cajanas cajan* L.) In : Extended Summaries Vol.-1, 2nd International Agronomy Congress. Held at IARI, New Delhi, Nov. 26-30,2002, pp. 251-252.
- Sharma, D.D., Ameta, VI., Shaktawat, M.S. and Sharma, R.S.** (2001). Response of soybean to value added PROM prepared from Pr (34/74) and karanj cake. *PROM Review 2001. Phosphate Research and Development Centre RSMML, Udaipur* pp. 90-92.
- Singh, D., Mannikar, N.D. and Srinivas, N.C.** (1976). Comparative performance of indigenous rock phosphate and super phosphate with and without phosphobacterins. *J. Indian Soc. Soil Sci.* 24 : 182-185.