

## EFFECT ON GROWTH PARAMETERS AND OIL CONTENT OF LEMONGRASS WITH RESPECT TO IRON PYRITE UNDER AND CONTINUOUS USE OF RSC RICH IRRIGATION WATER

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Received-07.01.2019, Revised-25.01.2019

**Abstract.** An experiment was conducted at, School of Chemical Sciences Department of Chemistry, St. John's College Agra, in factorial randomized block design by using different concentrations of RSC rich irrigation water (viz, 0, 5, 10 and 15 meq/l) with an aim to know the "oil content and growth characters of lemongrass with respect to iron Pyrite and RSC rich irrigation water". The chemical ameliorant pyrite in lemongrass was applied through basal application @ 0, 5 and 10 t/ha at the time of the transplanting. The results showed that the oil content and growth characters of lemongrass decreased significantly with increasing levels of RSC on the other hand enhancing levels of pyrite significantly increased all the above characters but Pyrite did not show appreciable performance in case of plant height. The P<sub>2</sub> (10 t/ha) level of pyrite proved more beneficial with regards to herbage yield of lemongrass.

**Keywords:** RSC, Pyrite, Lemongrass, Growth parameters, Oil

### REFERENCES

**Agarwal, S.C., Mehrotra, N.K. and Singh, B.K.** (1964). Influence of exchangeable sodium on growth and mineral composition of plants. I paddy and barley. *J. Indian, Soc. Soil.* **12**: pp7-24.

**Brar, B. S.** (1987). Sodium hazard of bicarbonate irrigation waters as affected by leaching fraction and amendment application *thesis abstracts.* **13** (12): pp 171-172.

**Bajwa, M.S. and Josan, A.S.** (1989). Effect of Gypsum and sodic irrigation water on soil and crop yield in a rice-wheat rotation. *Agric. Water Manage.* **16** (1): pp 53-61.

**Bhadauria, V.P.S. and Varsha, Gupta** (2015). Herbage yield of lemongrass with respect to iron pyrite and RSC rich irrigation water. *World Research Journals Conference, 07 to 08 December 2015, at Dubai, UAE.* pp. 259-261

**Bhadauria, V.P.S., Gupta, Varsha, Raj Rahul and Prasad, F.M.** (2012) Oil content and growth characters of lemongrass with respect to iron pyrite and RSC rich irrigation water, *International Conference on Environment, Energy and Biotechnology IPCBEE, IACSIT Press, Singapore,* **33**, 205-208

**Bhadauria, V.P.S., Prasad, F.M. and Gupta, Varsha** (2011) Effect of iron pyrites on the quality attributes of lemongrass (*Cymbopogon flexuosus*) irrigated with high RSC water, *Res. J. Chem. Environ,* **15**(2), 586-588

**Bhadauria, V.P.S., Prasad, F.M. and Gupta, Varsha** (2009) Effect of Residual Sodium Carbonate (RSC) and Pyrite on growth characters of

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*Cymbopogon flexuosus* (Lemongrass), *Proceeding of International Conference on Recent advances in environmental Protection (RAEP 2009)*, Dec 17 – 19, Agra, India

**Chhabra, R., Abrol, I.P. and Singh, M.** (1980). *Int. symp.* Salt affected soils, Karnal. pp 418.

**Chauhan, R.P.S.** (1987). Sedimentary pyrites in improving nitrogen fertilization use efficiency in rice wheat system; *J. Maharashtra Agric. Univ.* **12**(3): pp274-277.

**Chauhan, R.P.S., Chauhan, C.P.S. and Dixit, H.C.** (1989). Effect of residual sodium carbonate in irrigation water on yield and chemical composition of Berseem. *J. Indian Soc. Sci.* **37**: pp431-432.

**Chauhan, R.P.S., Chauhan, C.P.S. and Singh, V.P.** (1989). Use of pyrite in minimizing the adverse effect of saline water. *Ind. J. Agric. Sci.* **56**: pp717-721.

**Kanwar, B.S. and Kanwar, J.S.** (1971). Effect of residual carbonate in irrigation water on plant and soil. *Ind. J. Agric. Sci.* **14**: pp54-56.

**Laura, R.D.** (1973). Effect of sodium carbonate on carbon and nitrogen mineralization of organic matter added to soil, *Geoderma.* **9**: pp15-26.

**Paliwal, K.V., Maliwal, G.L. and Nanawati, G.C.** (1975). Effect of bicarbonate rich irrigation water on the growth, nutrient uptake and synthesis of protein and carbohydrates in plants. *Pl. soil.* **43** : pp523-536.

**Prasad, K., Singh, R.B. and Singh, B.P.** (1982). Pyrites and phosphates application on some soil characteristics. Grain yield and mineral composition of gram cutivar (C-235) under calcareous saline alkali soil. *Proc. Indian Natn. Sci. Acad.* **48b**; pp440-446.

**Singh, S.B. and Abrol, I.P.** (1986). Effect of soil

sodicity on growth yield and chemical composition of soyabean, *J. Indian Soc. Soil Sci.* **34**: pp 568-571.

**Somani, L.L.** (1984). Use of low grade pyrites as an amendment for alkali soils and to improve soil fertility – A review. *Ferti., News* **29** (7) : pp 13-27.

**Verma, S.K. and Gupta, R.K.** (1984). Relative effectiveness of pyrites and Gypsum in reclaiming a sodic clay soil. *J. Indian Soc. soil sci.* **33** (2) : pp465-468.