USE OF INDUSTRIAL WASTE AND BYE-PRODUCT AS A P SOURCE FOR IMPROVING CROP PRODUCTION

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ABSTRACT

Dicalcium phosphate (DCP) and bone meal (BM) are the industrial bye-products and waste of Leiner Pak Gelatine Limited, Kala shah Kakoo, near Lahore. which contain 42% and 20% P_2O_5 respectively. Considering the high content of P in these materials, a pot experiment on maize was conducted to test them as P sources and compare with the standard P fertilizers like SSP, DAP and TSP. Each P source was applied at the rate of 50 mg P kg^{-1} soil. Nitrogen at the rate of 100 mg kg^{-1} soil was applied in two splits. The dry matter of 43 days old maize plants indicated that bone meal did not effect the plant growth and P content while all other P sources including DCP significantly increased the DMY and P content of the plants. Residual effect was also tested by growing wheat in the same pots after maize. The data showed that residual effect of bone meal was significant to increase the dry matter yield and P content in wheat as compared to SSP, TSP, DAP and DCP in the same crop. The treatments where maize produced good yield, wheat produced poor yield and vice versa. This indicates that P from SSP, DAP, DCP and TSP was utilized by maize plants and a little P was left for wheat crop. It may be concluded that DCP holds a good promise as P fertilizer for crop production. Bone meal proved to be a useful source for the subsequent wheat crop.