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EFFECT OF SELENIUM ON DRY MATTER YIELD, CHEMICAL COMPOSITION AND NUTRIENT UPTAKE BY BERSEEM (*TRIFOLIUM ALEXANDRINUM)* IN RELATION TO ITS INTERACTION WITH PHOSPHORUS

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ABSTRACT

Selenium application at different levels (0-10ppm) significantly decreased the fresh and dry matter yield, content and uptake of nitrogen, phosphorus, calcium, magnesium and sulphur in berseem. However, selenium application increased its content and uptake in plants. Application of phosphorus showed favourable effect on dry matter yield. The increasing levels of applied phosphorus increased the yield as well as the content & uptake of phosphorus. Phosphorus application increased selenium content in plants showing synergistic effect.

Key words : Selenium, Phosphorus uptake, Synergistic effect.

INTRODUCTION

Selenium, though a non- essential element for plant except few species, is an element of agronomic importance. Looking through the literature on selenium (Se) one will find it variously described as "Fickle as a moon", the element with a "schizophrenic chemical personality" etc. The low selenium concentration in fodder crops from many areas have resulted in an increasing interest in raising the selenium content of fodder plants by field treatment with selenium, which raises the question of a possible ecological hazards. The biological half-life of selenium in the tested animals is reported to be very short and no bioaccumulation as such has been seen (Hodson *et al*., 1980, Gissel Nielsen, 1973). Thus from an ecological point of view field treatment with physiological level of selenium possibly has no negative impact on the environment.

Selenium stimulates plant growth, may be because it substitutes, in definite enzymatic paths of some essential nutrients like sulphur and phosphorus. Although, phosphorus was also found to detoxicate selenium toxicity in some plants (Singh and Bhandari, 1974). However, the definite mechanism of its action is yet to be confirmed. Visual symptoms of selenium toxicity have never been observed in plants growing on seleniferous soils in field. Since visual symptoms do not provide conclusive evidence of selenium toxicity in the field, it becomes necessary to make chemical analysis of plants to confirm the presence of excess selenium. The capacity of different plant species to accumulate selenium also varies widely (Rosenfeld and Beath, 1964).

Interactions between selenium and phosphate have also been reported by (Singh, 1979). Although, conflicting results on selenium phosphate relationship have been found, most investigations have found that soil addition of phosphorus increased selenium accumulation (Singh