digested plant material was determined as described by Mackenzie and Dean.[4] G.M. counter with binary scaler was used for recording the data. The radio-assay data were utilised to calculate the uptake of fertilizer and soil phosphate.

The total dry yield, total phosphate uptake and uptake of fertilizer and soil phosphate are given in Table I.

TABLE I

*Uptake of phosphorus from the soil and dicalcium phosphate by inoculated and uninoculated legumes*

(The figures quoted in Table I are average of 4 replications.)

| Treatments | Total dry matter yield (g.) pot | Total phosphate in plant (mg.) | Uptake of phosphorus from Fertilizer (mg.) | Uptake of phosphorus from Soil (mg.) |
|---|---|---|---|---|
| | Cowpea (*Vigna sinensis*) | | | |
| Uninoculated | 5·65 | 8·77 | 0·168 | 9·41 |
| Inoculated | 6·95 | 11·91 | 0·223 | 11·27 |
| C.D. at 5% | 1·04 | 1·52 | N.S. | 2·27 |
| | Mung (*Phaseolus aureous*) | | | |
| Uninoculated | 4·60 | 5·39 | 0·076 | 4·98 |
| Inoculated | 5·38 | 7·19 | 0·104 | 8·93 |
| C.D. at 5% | 0·52 | 1·62 | N.S. | N.S. |
| | Urid (*Phaseolus mungo*) | | | |
| Uninoculated | 4·98 | 6·72 | 0·101 | 6·57 |
| Inoculated | 5·55 | 7·99 | 0·145 | 9·15 |
| C.D at 5% | N.S. | N.S. | N.S. | N.S. |

N.S.—Not significant.

A scrutiny of the data will show that the yields and uptake of phosphorus in the case of all the three legumes when considered together and statistically analysed would indicate that inoculation would give rise to higher yields of dry matter, total uptake of phosphates and higher uptake of phosphate from the soil.

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## CHEMICAL RADIATION DAMAGE IN CRYSTALLINE AMMONIUM DICHROMATE

MOHANTY and co-workers[1] have studied annealing of chemical radiation damage in a variety of solid substances. We have now investigated ammonium dichromate in our search for newer systems susceptible to annealing.

AR grade ammonium dichromate was sieved to obtain crystals in the 150–200 mesh range. The crystals were dried over phosphorus pentoxide and irradiated with 2 Mev electrons from a Van de Graaff machine to a dose of 50 Mrad with the samples so distributed that their thickness in the direction of the beam was less than half the range of the electrons in the material. At each pass under the beam a dose of about 1 Mrad was delivered. Irradiations were interrupted periodically so that the temperature of the irradiated material was always below 45° C. The damage Cr(III) was separated[2] from the target, along with Al as carrier, by precipitating it as the phosphate at pH 5–5·4. The phosphate, purified by two reprecipitations with washing, was dissolved in 0·5 N sulphuric acid and the Cr(III) oxidized with a slight excess of potassium permanganate. The excess permanganate was destroyed with just the necessary amount of sodium azide. The solution was adjusted to 0·2 N with respect to sulphuric acid and the colour developed with alcoholic diphenylcarbazide was determined spectrophotometrically at 540 m$\mu$.

The damage induced in the substance by the irradiation was 1839 ppm Cr(III). Heating at temperatures up to 125° C. for 25 hours did not bring about any recovery of the damage. On the other hand, Getoff and Maddock[3] have observed sensible recovery of the $(n, \gamma)$ recoil damage in the substance even on heating at as low a temperature as 104° C.

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