

role in blood regeneration. It is true that, as in Alcock's experiments, in normal animals tryptophane deficiency produces no marked anæmia, but this must be explained on the assumption that blood composition is maintained constant by utilization of tryptophane derived from tissue wastage as is proved by the fact that although animals on a tryptophane-deficient diet present a nearly normal blood picture, they lose weight continuously during the experimental period.

TABLE II

| | Hydrolysed casein + tryptophane | | | Hydrolysed casein | | |
|-------------------------------|---------------------------------|------|-------|-------------------|-------|-------|
| | Days | | % | Days | | % |
| | 0 | 12 | | 0 | 12 | |
| R.B.C. in millions per c.mm. | 3.04 | 6.45 | 112.1 | 3.06 | 4.75 | 55.24 |
| Hæmoglobin in gm. per 100 mm. | 8.34 | 13.7 | 63.52 | 8.39 | 11.77 | 40.28 |

| | R.B.C. | Hæmoglobin |
|------------------------------|--------|------------|
| Standard error of difference | 17.9 | 6.77 |
| Value of <i>t</i> | 4.66 | 11.95 |

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THE INDUCED OXIDATION OF OXALIC ACID BY DICHROMATE WITH FERROUS SULPHATE AS INDUCTOR

DURING the course of some other work we discovered that the presence of oxalate interferes with the titration of ferrous sulphate with dichromate by giving rise to a consumption of dichromate far in excess of the amount required for the oxidation of the ferrous iron present. This excess consumption of dichromate cannot be explained as due to any primary reaction between oxalate and dichromate, for it is known from the work of Dhar¹ that oxalic acid is only slowly oxidised by dichromate at ordinary temperatures.

Further, we have observed that, in the absence of ferrous sulphate, oxalate at the concentrations employed in our experiments does not consume any dichromate, the deep blue colour indicative of the end point with the diphenyl amine reagent being produced by the addition of a single drop of dichromate. Detailed experiments carried out by us have led to the conclusion that the observed interference of oxalate is due to the fact that the rapid reaction between ferrous sulphate and dichromate induces the reaction between oxalate and dichromate.

The following table incorporates some of the typical results:—

10 c.c. N/20 Fe SO₄ + 5 c.c. 4N H₂SO₄ + 2.5 c.c. H₃PO₄ (1.75 Spgr) + 0.5 c.c. 0.1% diphenylamine + X c.c. oxalate + water to make up the volume to 50 c.c.

| Concentration of oxalate | Amount of dichromate 0.0529 N (in c.c.) | Induction factor (F) F = $\frac{\text{No. of moles of oxalate oxidised}}{\text{No. of moles of FeSO}_4 \text{ oxidised}}$ |
|--------------------------|---|--|
| Nil | 9.45 | |
| 0.01N | 12.05 | 0.14 |
| 0.03N | 14.15 | 0.25 |
| 0.05N | 14.80 | 0.28 |

From the results given in the above table, it will be seen that the induction factor increases with increasing concentration of oxalate the concentration of ferrous sulphate and hydrogen ion being kept constant.

We have also found that ferrous sulphate induces the reaction between dichromate and tartaric, citric, and malic acids but not succinic acid.

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AN IMPROVED METHOD OF LOCATING TANNINS IN PLANT SECTIONS

COMMON TESTS FOR TANNINS

VARIOUS methods¹ have been described for locating tannins in plant tissues, but they all suffer from one disadvantage or the other. Vinson² fixes and stains tannins *in situ* by exposing whole organs to vapour of amyl or ethyl nitrite. He recommends a 20 per cent. alcoholic solution of ethyl nitrite, but, owing to its low boiling point (16° C.) it volatilizes so rapidly at the temperatures prevailing in this country, that in practice it becomes difficult to get satisfactory results. Amyl nitrite on the other hand though less volatile, is disagreeable to use.

Methylene blue (1:500,000) followed by saturated aqueous picric acid, has also been