

of schorlite and elbaite in the proportion of 3:2 approximately.

The origin of these tourmaline schists is ascribable to the influence of the neighbouring Gunjur Betta granites. Small crystals of tourmaline of similar optical properties are found in the rocks of this area, but schists composed predominantly or entirely of tourmaline have not so far been recorded.

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### GROWTH-PROMOTING FACTORS FROM GROUNDNUT OIL

In a previous communication<sup>1</sup> we have shown that the growth-promoting factors associated with groundnut oil can be effectively removed by chromatographing the oil through columns of alumina (Brockmann, Merck). Diets prepared with oils thus purified, could not support the growth of the rice moth larvæ (*Corcyra cephalonica* Staint). It was of interest to determine if the adsorbed columns could be washed with suitable solvents to yield the growth-promoting factors in an active condition.

The columns were washed once with a small quantity of petroleum ether (40°-60°) to remove the excess of groundnut oil and then treated with a 1:1 perol-ether-methyl-alcohol mixture. The solvent mixture was removed from the eluate by evaporation *in vacuo* and the residue taken up with peroxide-free ether and used for the preparation of the diets, the chloroform extracted jowar was employed as the basal medium. 4.28 per cent. of the eluate was added to the diet. This proportion corresponds to the percentage of chloroform soluble extract of the jowar employed in our studies.

Batches of 10 days old larvæ previously fed on whole jowar for the period, were first maintained for a term of six days on chloroform extracted jowar. They were then transferred to the experimental diets and weighed at intervals. The results are given in Table I.

Average weight of 10 larvæ in mgms. after

| Diet | Days |      |       |       |       | Remarks      |
|------|------|------|-------|-------|-------|--------------|
|      | 0    | 14   | 23    | 28    | 35    |              |
| I    | 9.8  | 19.6 | 32.5  | 51.5  | 40.6  | None pupated |
| II   | 9.6  | 58.8 | 142.1 | 164.5 | 172.8 | 30% pupated  |

Diet I.—Chloroform extracted jowar + chromatographed groundnut oil (4.28 per cent.).

Diet II.—Chloroform extracted jowar + eluate from the chromatogram (4.28 per cent.).

It will be seen from the table that the growth-promoting factors can be eluated from the chromatographed columns of alumina.

A portion of the eluate was saponified with alcoholic potash and the unsaponifiable fraction extracted with peroxide-free ether, A diet containing the chromatographed groundnut

oil (4.28 per cent.) was supplemented with 0.26 per cent. of the unsaponifiable matter. Adopting the same technique, feeding experiments were carried out with the larvæ of the rice moth. Results are given in Table II.

Average weight of 10 larvæ in mgms. after

| Diet | Days |       |       |              | Remarks  |
|------|------|-------|-------|--------------|----------|
|      | 0    | 14    | 21    | 28           |          |
| I    | 25.3 | 71.5  | 176.2 | 33 per cent. | Pupation |
| II   | 24.0 | 118.5 | 204.1 | 55           | ,,       |

Diet I.—Chloroform extracted jowar + 0.26% unsaponifiable matter + 4.28% of thrice chromatographed groundnut oil.

Diet II.—Chloroform extracted jowar + 4.28% eluate.

The results establish that the growth-promoting factor of the groundnut oil is intimately associated with the unsaponifiable portion of the eluate. The data presented in the tables suggest the existence of a "pupation" factor which is also associated with the unsaponifiable portion of the oil.

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1. *Curr. Sci.*, 1942, **11**, 462.

### THE INFLUENCE OF FEED UPON THE COMPOSITION OF TERMITE SOILS

THE harmful role of the termites is widely known in the tropics. At the same time it is now pretty well known that they contribute to a certain extent to the general fertility of a soil and termite soils have been found to be quite rich in plant food nutrients. Compact cellulosic material which can be decomposed only with difficulty, are literally converted into fine soil by their action in a short time.

Termite soils, however, vary greatly in their composition in relation to the neighbouring normal soil. Soils from an active termite heap at Nigeria<sup>1</sup> have been found to be extraordinarily rich. Those examined previously by Engle,<sup>2</sup> though richer in plant foods than an adjacent soil had much less quantity of plant nutrients than the Nigerian heaps. Though environmental conditions must be having much to do with the activity of the termites it was suspected that among the factors, which influenced the changes in the composition of the soil brought in by them the nature of the material they feed upon is expected to be one. With this object in view the analysis of the soil brought in by the termites feeding on different materials like paper, wood, etc., was undertaken.

The movements of termites on a wooden window could be interrupted by breaking down the soil already on the wood and placing bits