TABLE I

Fungi sp. isolated from the gut of the worker termite (Odontotermes obesus) on *Czapek-Dox agar medium*

Results are average of six replicates.

Fungi species	No. of individual fungal colonies/10 ml homogenized gut suspension
Rhizopus sp.	100
Penicillium sp.	40
Aspergillus nidulans	80
A. clavatus	140

Auxin (indole acetic acid), a major plant growth regulator, is produced by soil actinomycetes, bacteria, mycorrhizal fungi and numerous soil fungi[12]. The present report records the release of auxin (IAA) from the culture filtrate of several fungi isolated from the gut of worker termite, *O. obesus*. Although the occurrence of auxins (IAA) has been recorded earlier from the culture medium of *Fusarium* sp., *Aspergillus* sp. and *Rhizopus* sp, these fungi were isolated from sources other than the termite gut. We are reporting for the first time the production of auxins (IAA) by the associative fungi normally present in the termite gut. Their relation to the presence of several species of bacteria known to fix atmospheric nitrogen[13], other heterotrophic bacteria[14,15] and actinomycetes[16,17], besides several symbiotic protozoans[18] needs further investigation. Variations in the amounts of auxins (IAA) produced by different fungal strains and also alterations due to prolonged incubation period suggest some kind of regulatory mechanism in the fungal hyphae which controls the production and release of auxin (IAA) in the culture medium. The physiological significance of this regulatory secretion also needs clarification.

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A SHORT NOTE ON THE FORMATION OF LARVA-PUPA INTERMEDIATE AFTER TREATMENT WITH CHEMOSTERILANT—PENFLURON

THE chemosterilants interfere with the reproductive potential of the treated insects by producing either sterile or fewer eggs, thereby reducing the population of the treated insects.

The chemosterilant Penfluron was obtained through the courtesy of Dr. A. B. Borkovec (U.S.D.A.) and was applied against *Spodoptera litura* Fab. (Lepidoptera), a polyphagous pest attacking more than seventy host plants. Penfluron was dissolved in acetone and applied on the prothoracic dorsum of the last instar larva ready to pupate in 24 hours. This stage was selected because younger stages produced total mortality. After the treatment, the larvae were provided fresh leaves and sterilized soil in petridish for pupation. The mortality and sterility effects were noted.

When the larvae were treated with 0·45 μg/larva, the mortality was 4% only and the deformity effect was 96%. Thus no emergence of adult moth took place. The deformity has been noted earlier by Hathaway, Lydin and Butt[1], Nagasawa and Nakayama[2], and Nakayama, Agmi and Yagi[3] in the case of other chemosterilants. The present authors have not come across any report on the formation of deformed individuals after treating with Penfluron.

FIG. 1. Control pre-pupa of *Spodoptera litura*.

FIG. 2. *Treated pre-pupa* (larva-pupa intermediate) after treatment with 0·45 μg/larva Penfluron.

In the present study the deformed individuals were all of larva–pupa intermediate type, *i.e.*, the treated larvae could not metamorphose completely. The metamorphosed individuals were more like in a pre-pupal condition—the head and thorax retaining the larval characters whereas the abdominal cuticle was of the intermediate pupa type. Another important point in this study was that the chemical caused 100% deformity amongst the survivors.

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INFLUENCE OF DIKEGULAC-SODIUM ON CHLOROPHYLL DEGRADATION AND CHLOROPHYLLASE LEVEL IN DETACHED LEAVES OF *AVENA SATIVA*

DIKEGULAC-SODIUM (sodium-2,3 : 4,6-di-O-isopropylidene-α-xylo-2-furanosonate) or ATRINAL[R] is a biologically active new growth regulator and exhibits a broad spectrum of diverse effects on plant growth and development[2–9]. It inhibits chlorophyll biosynthesis[2,6]. Recently, Purohit and Chandra[9] studied the individual and combined effects of dikegulac and GA_3 on chlorophyll biosynthesis of *Avena sativa* and proposed a model pertaining to the possible mode of actions of dikegulac on degradation/inhibition of chlorophyll biosynthesis in leaves. The model suggests that dikegulac may act either (i) by inhibiting hormonal (GA, IAA and cytokinins) activity and by interacting with hormonal-induced other growth regulatory activities responsible for chlorophyll biosynthesis[2,8,9] or (ii) by suppressing rRNAs incorporation into plastid nucleic acid and its synthesis[4] or (iii) by inhibiting GA-dependent DNA biosynthesis which decreases protein content necessary for chlorophyll biosynthesis[2] or (iv) by direct involvement in increasing chlorophyllase synthesis induced by ethylene. Level of ethylene increases to six-fold after dikegulac treatment[3]. The last possible mode of action on chlorophyll inhibition and chlorophyllase activity on *A. sativa* is yet to be confirmed. In this report the effects of dikegulac-sodium on chlorophyllase level in detached leaves of *A. sativa* are reported.

Seeds of *A. sativa* were sown in plastic trays containing ordinary soil mixed with farm yard manure under natural day (11–13 h) and temperature (25°–32° C) Two week old leaves of similar shape, colour, size (10 mm) were cut from both ends and floated on distilled water or test solutions (kinetin 30 mg/l), dikegulac 50 and 100 mg/l). Chlorophyll of leaves was estimated[1]. For the determination of chlorophyllase activity 25 g of leaves were ground in chilled mortar and pestle and was mixed with 125 ml of chilled acetone and washed with ethyl ether. The filtrate was dried at room temperature and was stored in refrigerator. The residue was assayed for chlorophyllase activity according to Holden[10]. The preparation and assays of chlorophyllase were made in triplicate.