

Apparently, the development of fruiting bodies under such vegetation was favored with onset of wet season when the relative humidity reached 78% and monthly mean temperature of 28°C. Furthermore, symbiotic association seemed to fit soil which was characterized to be weakly acidic (pH 5.9) with low available phosphorous content (1.6).

External and internal examination of root samples under Scanning Electron Microscope (SEM) verified the fact that dipteroarps were ectomycorrhizal formers. This is exemplified by Hartig net formation in the obliquely elongated epidermal cell walls and fungal mantle on the root surfaces. The absence of vesicles and arbuscules in cleared and stained roots further supports these findings. Moreover, clamp connection and septation in hyphae proved that the mycosymbionts were basidiomycetous fungi.

STUDIES ON THE EFFECT OF METHYL PARATHION ON THE SPERM MORPHOLOGY OF THE ICR STRAIN MOUSE

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Sperm morphology test was used in this study to evaluate the potential testicular toxicity of methyl parathion on sexually mature ICR strain mouse.

Male mice were injected intraperitoneally with sublethal doses of 1, 3 and 6 mg pesticide per kg body weight. Abnormalities on the acrosomal head morphology were analyzed through smear preparation. The incidence of variant abnormal shapes of the acrosome was found to be dose dependent and such were observed in the following forms: amorphous, rhomboid, beak, balloon, distally branched, banana, funnel, sunflower, calyx, branched and double headed. These abnormalities were correlated with changes in the motility and penetrating capacity of the sperms thereby affecting fertilization.

MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES

A SIMPLE ASSOCIATIVITY TEST FOR FINITE ALGEBRAIC STRUCTURES

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The defining *structure matrix* $S(G)$ of a finite algebraic system manifests most of its abstract properties through certain unique characteristic patterns of its entries – except the *Associative Postulate* PA. Using $S(G)$, however, three matrices $P(g_r)$, Q and $R(r)$ can be formed by means of which we can show that: If and only if $\langle G; \otimes \rangle$ is a group, then it follows that

$$R(r) = P(g_r) \circ Q = \sum_{x=1}^n g_{rx} P(g_x)$$

where $r=1, \dots, n$, $g_{rx} = g_r \otimes g_x$, $g_r, g_x \in G$, $P_{x=1}(g_r), P(g_x)$ are permutation matrices, and \circ is matrix multiplication. Hence, if $\langle G, \otimes \rangle$ is a group, then its operation \otimes is associative and its matrix $R(r)$ exhibits unique pattern that is determined by PA: its diagonal entries are all equal to g_{rx} for all r . This pattern can therefore be used as a simple *Associativity Test* for finite systems that are defined in terms of their structure matrices. The test is easy to apply and it involves only the formation and evaluation of $n R(r)$ matrices as against the n^3 pairs of triple products normally required for testing a finite system of order n .

HEALTH SCIENCES

ANTI-FERTILITY EFFECTS OF KANDI-KANDILAN [*STACHYTARPHETA JAMAICENSIS* (L. VAHL)] LEAF EXTRACTS ON THE FIRST 10 DAYS OF PREGNANCY OF ALBINO RATS (*RATTUS NORVEGICUS*)

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The effect of *Stachytarpheta jamaicensis* (L. Vahl) leaf extracts on the first 10 days of pregnancy in albino rats was investigated using 0%, 15% and 30% concentrations given orally and with five replicates per treatment.

The 30% extract caused a significant decrease in RBC, hematocrit, number of pups, placenta and corpora lutea. However, there was an increase in hemoglobin and WBC values.

The 15% extract caused an increase in RBC and WBC counts, hematocrit and hemoglobin values but had no significant effect on the number of pups, placenta and corporal lutea. There was ova lost between ovulation and implantation for the control group while both the 15% and 30% extract-treated rats had an average of 0.5. Histoanalyses of the liver and lungs showed congestion, necrosis and hemolytic spots. Also, there were scars and mummified fetus in the placenta of the 30% extract-treated rats.

Results indicated that *Stachytarpheta jamaicensis* (L. Vahl) leaf extract at 15% and 30% levels affected the normal reproductive physiology of albino rats on the first 10 days of pregnancy. These results also support earlier reports that it has abortifacient and anti-fertility effects.