MATERIALS AND METHODS
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During the present study various materials and methods were used to study the *distribution, bionomics and control of Gastrallus indicus*. A survey regarding the distribution of *G. indicus* was carried out using different methods like personal inspection of the museum collections, archives and libraries, personal enquiries from the library personnel and sending out questionnaires to the custodians of various institutions. During personal enquiries, the peculiar characteristics of the infestation were explained to the custodians by showing infested books, larvae and adult of *G. indicus*, so as to enable them to provide us with correct information. Similar informations were also provided in the questionnaire, in pictorial form, (Copy of the questionnaire is enclosed)

The egg clusters, larvae and adults were collected from the infested books present in the Maulana Azad Library of the A.M.U. Aligarh. The specimens were cultured in the Research Laboratory of the Department of Museology, A.M.U. by using an Environmental Study Chamber. The identification of the species was done after consultation with experts in the Entomology Section of the Department of Zoology and the same was confirmed by the International Institute of Entomology, London.
Morphological studies of the insect were carried out by preparing permanent slides for a detailed study of the important structures. For this purpose the insects were, dehydrated by passing them through ascending grades of alcohol. Thereafter they were treated with 10% KOH solution (for 6-7 hours) to soften and then were dissected. The dissected parts were mounted on slides using Canada balsam, and allowed to dry in a thermostat running at 50°C.

Drawings of important structures were made by using a camera lucida. Measurements of the insect were made with the help of an ocular micrometer.

The insect culture was raised in small booklets made of old paper which measured about 6" X 4" X 1". Besides, this culture was also raised in papier-mache medium in petridishes 14 cm. diameter. The booklets and the petridishes were kept in trays and glass jars respectively, which were covered with fine muslin cloth using rubber bands.

The biology of the insect was studied in the laboratory, under controlled conditions of temperature (28-30°C) and humidity RH(60-70%) by using an Environmental Study Chamber.

Observations were made daily on the developmental stages of the larva, pupa and adult along with their breeding and feeding behaviour. Photographs of different stages of the life cycle were taken by using an SLR camera attached to a microscope.
The feeding response of the larva was studied by using various food materials such as paper, papier-mache, cotton wool, maida-paste (Paste made up of fine wheat flour), cotton cloth pasted with maida paste, paper pasted with maida paste, leather pasted with maida paste, binding leather, sawdust and paper pasted with animal glue. These food materials were placed in petridishes of 8 cm diameter under controlled temperature (28-30°C) and humidity (RH 60-70%) in an Environmental Study Chamber. Each petridish was marked with a number (as shown in table No. 4). Ten specimens were released in each petridish. Weekly observations were made on the feeding response of the larvae for six weeks.

Certain experiments on fumigation were carried out under normal room temperature ranges 28°C -34°C, R.H. 60-65% and atmospheric pressure 76 mm, Hg. A few old books of approximately same size and volumes, having “dead” infestation, were selected to be used for the experiment. Ten larvae of more or less the same sizes were released in each book at different places, marking their locations by noting the page numbers. At a time one book (along with ten larvae) was exposed to 15 gms. of para-dichlorobenzene in the closed chamber (of 15" X 15" X 15") where it was maintained for a week. The first observation to record the mortality count was made after 3 days of exposure. Later subsequent observations were made after 24 hrs. Subsequently the same procedure was repeated using different quantities of the fumigant i.e. 20 gm, 25 gm, and 30 gm, every time using a separate book with ten larvae.
Thus the toxic efficacy of different quantities of the fumigant was assessed by the total mortality count of the larvae during the total period of seven days. While counting the number of mortalities the morbid larvae were also regarded as dead. The experiment was repeated five times with each quantity of the toxicant. The mortality data thus obtained was subjected to probit analysis and used for drawing regression lines to determine the LD₅₀ value of each quantity of toxicant as described by Finney (1952).

Some experiments were conducted to determine the efficacy of various standard insecticides, against the larvae, under laboratory conditions. The relative toxicity of fenitrothion, malathion, milphos and sevin were determined by exposing the larvae to a residual film of each insecticide in petridishes of 8 cm. diameter. Technical grades of the insecticides were obtained from the available sources for the preparation of stock solutions in acetone. Different grades of the insecticide were prepared by adding the required quantities of insecticides into a known volume of acetone. Hypodermic syringes of 5 ml. capacity were used for measuring and transferring various grades of the insecticides in petridish. For the sake of uniformity and easy comparison of data only five doses of each insecticide i.e. 0.065%, 0.125%, 0.25%, 0.5% and 1% were used. The treated petridishes were evaluated for their residual toxicity by releasing ten larvae in each petridish for a period of 15 minutes. Thereafter the larvae were transferred to a clean petridish containing proper food materials. The toxic efficacy was assessed by taking the mortality count after 72 hours of post exposure period.
The experiment was repeated five times with each dose under the same conditions. Mortality data thus obtained was subjected to probit analysis and used for drawing regression lines to determine the LD\textsubscript{50} value of each insecticide as described by Finney (1952) and Busvina (1971). The same residual films were re-tested after a period of two weeks to ascertain the aging effect.

In order to conduct experiment on the "effect of temperature on the larvae of G. indicus," two cardboard boxes measuring 6"X3"X1" were prepared. The boxes were loosely packed with paper cuttings. Thereafter twenty five larvae were released in each box. The boxes were covered with polythene bags which were sealed with the help of cellophane tape. One of the boxes was maintained at -5°C and the other at 0°C for 48 hrs. in a freezer. The first observation regarding the effect of temperature on the larvae was recorded after an hour and later on observations were made every 4 hours.