TABLE 2

The habitat potential of flies: Species and individuals trapped per flower

Sl. No.	Habitat	Flowers sampled	No. of insect species	Average No. of Insects/ Flower	Nature of insect spp.
1.	Field hedge near water course.	10	10	162	Minute flies of Sepsidae, Formicidae, etc.
2.	Fenced hedge around bunglows.	10	30	91	Minute and medium sized insects of Sepsidae, Brucidae, Muscidae, and Otitidae.
3.	Under the bushes of open grazing fields.	5	6	8	Large-sized flies of Sarcophagidae, Muscidae, Calliphoridae.

These observations agree with those relating to *Arum* and *Arisarum*[1,2].

It has been observed that as many as 41 species of carrion and dung flies, bettles and ants (table1) belonging to 8 families (Bruchidae, Sepsidae, Otitidae, Formicidae, Muscidae, Sarcophagidae, Scarabaeidae and Calliphoridae) are attracted by this aroid. This is the number of insect species obtained after sampling the flowering spathes in three different habitats; *viz.* (a) field hedge near water courses, (b) fenced hedge around banglows and (c) under the bushes of open grazing fields (table 2).

The number of insect species can further be increased by increasing the number of habitats. As such, the plant can be used with great advantage by entomologists investigating the systematics and ecology of such insects. The plants can be grown with ease from corms and flowering can be induced by keeping dormant corms in dark during the months January and February.

These plants can be employed to divert the population of such flies as *Chrysomya, Sarcophaga, Orthellia, Hemipyrellia, Musca*, etc. from being a nuisance in cattle-sheds.

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A NOTE ON OVOVIVIPARITY IN *CULEX QUINQUEFASCIATUS* (DIPTERA: CULICIDAE)

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MOSQUITOES are oviparous and ovoviviparity[1], *i.e.* laying of eggs containing embryos in an advanced stage of development, has not been reported. A female *Culex quinquefasciatus*, the vector of bancroftian filariasis, was recently found with ovoviviparous condition.

The blood in the stomach was black and lasted 2½ to 3 sternites and tergites 5–6 were free from it, indicating the abdominal condition to be Sella's fourth stage[2]. There were 10 eggs retained in the ovary. When the ovary was dissected and placed in a drop of saline, one first stage larva hatched out from one of the retained eggs and found actively moving. Another two eggs were noticed with developing embroys and contraction of the heart was observed indicating advanced stage of development. No embryo development was found in the remaining seven eggs. Physiological age was determined by Polovodova's technique[3] and one dilatation was found indicating that the mosquito had completed its first gonotrophic cycle. First stage larvae of *Wuchereria bancrofti* were also found in the thorax of the mosquito. It has been reported[4] that filarial infection could cause egg retention.

The finding of ovoviviparity in mosquitoes is reported for the first time.

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EFFECT OF METABOLIC INHIBITORS ON EXCYSTMENT PROCESS IN *ENTAMOEBA HISTOLYTICA*

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It is believed[1] that cysts of *Entamoeba histolytica* formed in human bowel do not undergo any further development unless ingested by a new host. Due to the presence of bacteria in large numbers in the caecum and the large intestine, large concentrations of excystment factors would presumably be produced in these localities.

Review of literature on anerobic amoebae belonging to the genus *Entamoeba* clearly shows that the physiological and biochemical mechanism involved in encystation is not understood. It is generally believed that encystation follows periods of vigorous growth, culminating in some changed unfavourable conditions, that result in encystation[2,3]. Various factors causing excystation have been postulated to potentiate the emergence of trophozoites from their resting cysts in *Entamoeba histolytica*[4,5]. Excystment depended on the presence and type of bacteria[10]. Although some molecular changes associated during excystment have been reported, the factor(s) that trigger and regulate the events leading to excystation have not been elucidated[6]. The mode of action of different excystment agents as well as the mechanism of excystment have not been properly understood so far. The behaviour of metabolic inhibitors or excystment process of soil amoebae[7] triggered by different excystment agents has been studied. There are also reports on the effect of metabolic inhibitors on the growth and survival of the trophic stage of *E. hystolytica*[8,9], but there is no report on cysts of *E. histolytica* so far.

Cysts from faecal samples obtained from two patients suffering from chronic amoebic dysentery were checked in normal saline 0.85% (W/V) and in Lugol's Iodine (2:1) by gross microscopic examination. The cysts were concentrated and sterilized[10]. Excystment of these cysts was studied in a mixture of five L-amino acids (Arginine monohydrochloride, Alanine, Serine, Glutamic acid and Isoleucine 0.25% each pH 6.8), and live suspension of *E. coli*. Amino acid mixture was sterilized by autoclaving. The excystment was studied by inoculating sterile cysts in Balamuth's medium and incubated at 37° C for 48 hr, where live *E. coli* was used as an excystment agent. Balamuth's media tubes were preconditioned with bacteria for 6 hr before adding both cysts and metabolic inhibitors.

In the case of amino acids as an excystment agent the Balamuth's media were replaced by the amino acid mixture to which inhibitors and cysts were added.

In order to see the effect of inhibitors on excystment, these were sterilized by millipore filtration and incorporated in different excystment agents. The final concentration of the inhibitors in excystment agent is given in table 1. When the cysts failed to excyst in excystment agent containing inhibitors, excystment agent and inhibitors were washed off and the cysts put for excystment in fresh excystment media. Control sets of experiments were always kept where inhibitors were not used.

Studies on the effect of inhibitors, on the excystment of cysts of *E. histolytica* induced by excystment agents namely live *E. coli* and mixtures of five L-amino acid have been carried out. The results presented in table 1 show that inhibitor of DNA synthesis (mitomycin C) and messenger RNA (actinomycin D) when incorporated in Balamuth's media with live *E. coli* and L-amino acid mixture could not prevent excystment of cysts of *E. histolytica*. Inhibitor of protein synthesis (cycloheximide) when incorporated in Balamuth's media with live *E. coli* did not prevent excystment whereas in the presence of amino acid mixture there was no excystment. However the cysts excysted after the inhibitor, cycloheximide was washed off. The inhibitor of oxidative phosphorylation sodium arsenite[7], prevented the excystment of cysts, completely. Cysts exposed to sodium arsenite failed to excyst in the presence of excystment agents, *E. coli* and L-amino acid mixture, even after the inhibitor was removed by repeated washings.

The present study clearly shows that the behaviour of the metabolic inhibitors on cysts, during the process of excystation was not influenced by the type of