collected inside an 11.25 cm circle drawn on each Krome Kote card; 11.25 cm is the size of the opening in each plastic tub. Droplets of Teknar AC, in general, stained the Krome Kote cards more darkly than droplets of Vectobac AS. A droplet size analysis has not been completed. However, in general, the larger droplets were deposited near the flight path of the airplane and droplet size seemed to be progressively smaller downwind for both formulations. The Krome Kote cards on row 'C' of the Teknar test were labeled incorrectly when they were collected. Therefore, these data were not included in Table 1. The averages given in Table 1 for Vectobac AS include the average of rows 'A,' 'B' and 'C.' The averages for Teknar AC include only rows 'A' and 'B.'

Table 2 shows the percent mortality of the first through second instar *Culex quinquefasciatus* larvae 24 hours posttreatment. The control mortality for the Vectobac AS test was 2.9%. The control mortality for the Teknar AC test was 7.3%.

Much work remains to be done to determine the limits of this system in applying *B.t.i.* in ultra low volumes. However, the effective swath width seems to be at least 76.2 m with one formulation and the effective dose rate against first and second instar *Culex quinquefasciatus* seems to be below 0.59 liter/ha with at least one formulation (Teknar AC). Trials in Arkansas in July, 1984 (Sandoski, Yates, Meisch and Olson, personal communication) also indicate that applications of *B.t.i.* below 0.59 liter/ha are effective against natural populations of *Anopheles quadrimaculatus* in ricefields. Additionally, the field trials previously mentioned in both Texas (August and September 1982) and Arkansas (July 1983 and July 1984) indicate that *B.t.i.* applied through this system can penetrate thick vegetative cover in ricefields.

The Beecomist ultra low volume larviciding system can be adapted to almost any type of aircraft. All electrical components are available in either 12- or 24-volt units and almost any type of compressed gas system can be used as a propellent. The insecticide reservoir (beverage container) can be secured to the passenger seat of a small aircraft, to the landing gear of a rotorcraft or inside the hopper of agricultural type aircraft. Additional beverage containers can be added in series to increase the payload. All component parts are readily available and relatively inexpensive.

Field trials in Chambers County, Texas (1982, 1983) and Arkansas County, Arkansas (1983, 1984) indicate that the Beecomist ultra low volume larviciding system is an effective, low-cost alternative to conventional larviciding techniques in rice-fields. Employment of the system reduces the application costs by reducing the amount of active ingredient necessary for control and by eliminating the need for large volumes of carrier material. While much work remains to be done in testing the effectiveness of this system against other species of mosquitoes in other habitats, the system offers a highly acceptable alternative to more expensive conventional methods of applying *B.t.i.* in some situations.

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INVERSIONS IN SPECIES A OF THE TAXON *ANOPHELES CULICIFACIES*

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Three sibling species have been cytologically identified in the taxon *Anopheles culicifacies* Giles (Green and Miles 1980, Miles 1981, Subbarao et al. 1983). Two fixed paracentric inversions on the X-chromosome and 2 on arm 2R differentiate the members of this complex. Unlike many of the other anophelines which have been examined cytologically, no floating inversions have been reported in the members of this species complex. This paper describes a number of paracentric inversions observed in species A of this taxon.

All the mosquitoes used in this study came from field populations from various localities in Pakistan. The ovarian polytene chromosomes were prepared according to the method of Saifuddin et al. (1978). The Sattoki colony

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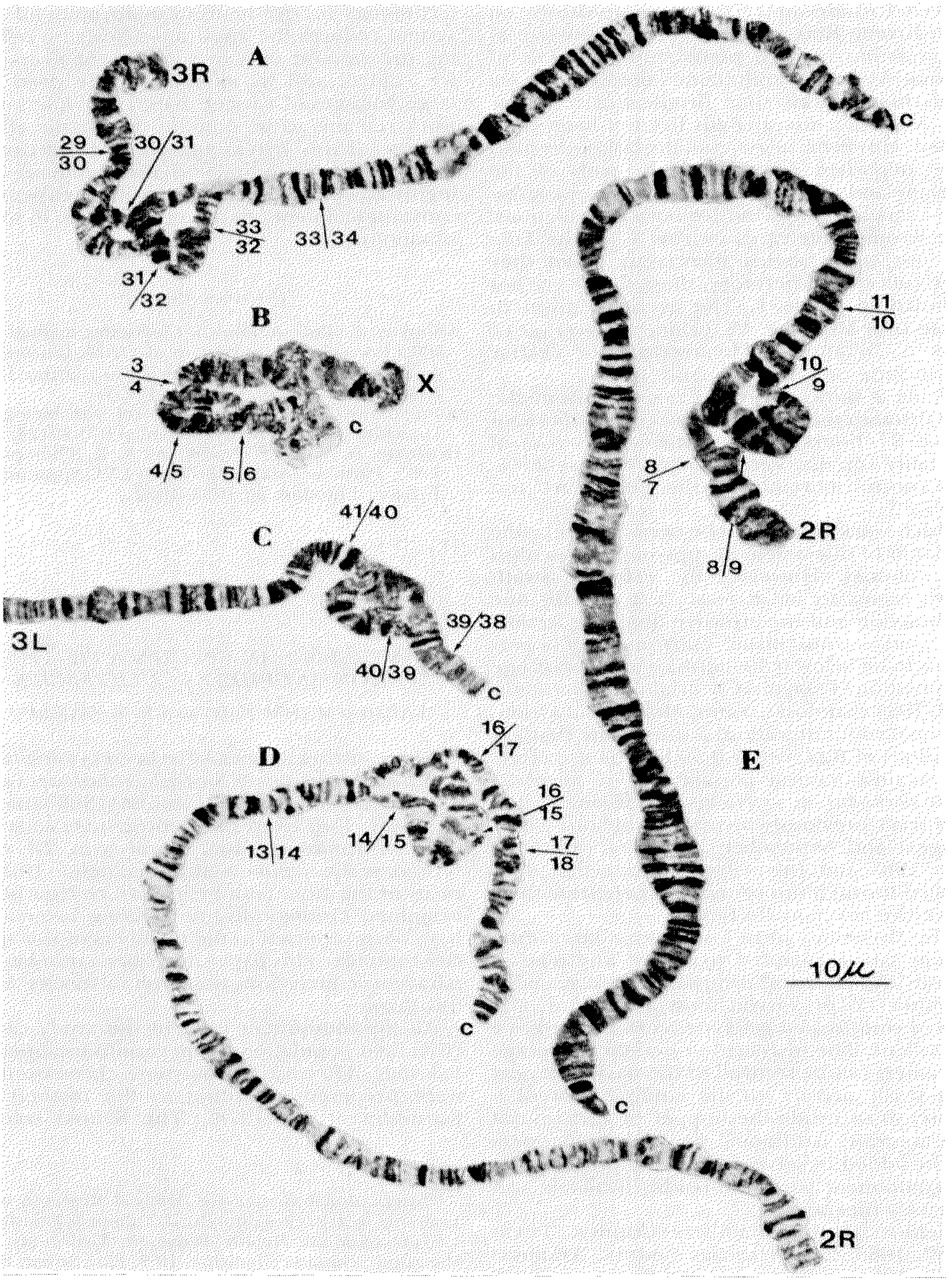

Fig. 1. Inversions in species A of *Anopheles culificies*. A. *In(3R)a*. B. *In(X)c*. C. *In(3L)a*. D. *In(2R)g*. E. *In(2R)i*. See text for more details of these inversions.

polytene chromosome complement was used as the standard and the zone designations followed those of Saifuddin et al. (1978).

Five paracentric inversions were observed:

(1). *In(3R)a* (Fig.1A). This inversion was found in one species A female from the village of Karan Wali approximately 100 km north of Lahore. Sympatric populations of both species A and B were present in this village and of the 811 *An. culicifacies* dissected and classified 647(79.8%) were of species A. The inversion involves zones 31 and 32 of arm 3R.

(2) *In(X)c* (Fig1B). This small inversion in zones 4 and 5 of the X-chromosome was observed in one female (n = 74) from Khizarabad approximately 33 km south of Lahore. Only species A was found in this village.

(3). *In(3L)a* (Fig.1C). This inversion on arm 3L involving zones 39 and 40 was also observed in the same female with the X inversion (above) from the village of Khizarabad.

(4). *In(2R)g* (Fig.1D). This arm 2R inversion which floats with varying frequencies in species A in Pakistan, appears to be identical with the fixed g inversion which partially differentiates species B from species A and C (Subbarao et al. 1983). It extends from the juncture of zones 14/15 to a portion of zone 16. Ten of 14 (71.4%) females from Pir Goth on the outskirts of Karachi City (1400 km south of Lahore), 1 of 161(0.6%) females from Kot Baghicha (58 km south of Lahore) and 1 of 4 (25%) females from Choa Shah (375 km north of Lahore) showed this inversion. Only species A was detected in these 3 villages.

(5). *In(2R)i* (Fig. 1E). One of 103 females from Khanke (67 km south of Lahore) was heterozygous for this arm 2R inversion. Only species A was present in this village.

Extensive surveys of field populations of species A of the taxon *An. culicifacies* have uncovered only 5 paracentric inversions; this is in contrast to the results of surveys of *An. stephensi* Liston (Mahmood and Sakai 1984) in which 16 paracentric inversions were observed.

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OBSERVATIONS ON THE RED IMPORTED FIRE ANT, *SOLENOPSIS INVICTA*, (HYMENOPTERA: FORMICIDAE) IN TREE HOLE MOSQUITO BREEDING SITES

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Red imported fire ants, *Solenopsis invicta* Buren were observed in a roadside park near Cooks Point, Burleson County, TX, in early November 1983. Mound-nest development in the park was most conspicuous at the base of trees in the lower, wetter areas. Many of the trees [American elm (*Ulmus americana* L.), water oak (*Quercus nigra* L.), post oak, (*Quercus stellata* Wang)] had developed rot holes and fork hollows that had become natural breeding sites for tree hole mosquitoes. Species found in these sites were: *Aedes triseriatus* (Say), *Anopheles barberi* Coquillett, *Orthopodomyia alba* Baker and *Orthopodomyia signifera* (Coquillett). Fire ants were observed moving up the trees and into these holes containing water and active mosquito larvae. They were observed in one rot hole 2.1 m above ground.

Twelve of 13 trees (92%) had an active *S. invicta* mound at their base and ants from these mounds were invading all active mosquito breeding sites in the trees. Some of the invading ants had formed soil-covered trails or tubes from the ground nest to the tree hole mosquito breeding sites, entered and deposited nest soil.

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