of the metacentric has resulted in the formation of the acrocentrics.

Regarding the 'donor' chromosome required for dissociation, as envisaged by White, the population includes individuals possessing supernumerary chromosomes besides the standard complements (figures 6 and 7); one such supernumerary could have served as the donor chromosome in the dissociation.

The meiotic process is normal. The disjunction of the trivalent is regular and results in the segregation of the metacentric (AB) at one pole, and the two acrocentrics (A & B) together at the other pole (figure 8); normal, viable sperms are produced from the spermatids. The new karyotype has got established in the population; only two of the twenty males studied in 1985–1986 exhibited dissociation; seven out of the twenty males examined in 1986–1987 showed the new karyotype. Thus, a new karyotype is evolving in the population of *E. securigera* at Alwarkurichi. A detailed account of the cytology of the insect is published elsewhere.

The polymorphic population of *E. securigera* will be subjected to C-banding of chromosomes to ensure whether or not the increase in length of the dissociated acrocentrics (A & B) is due to de novo addition of heterochromatin and that the supernumeraries are heterochromatic; also, they will be studied by employing G-banding technique to establish the identity of the chromosomes from which the acrocentrics have arisen. Pending further studies, the present report strongly suggests that the 'dissociation is a reliable mechanism for repatterning from metacentric to acrocentric morphology of chromosomes'.

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AFLATOXINS FROM ACTINOMYCETES

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AFLATOXIN production is attributed mainly to the genus *Aspergillus*, whereas actinomycetes considered by some to be a borderline between bacteria and fungi[1] were studied for aflatoxin production. The studies were carried out on the actinomycete isolates from dust evolved during agricultural operations like harvesting, threshing and shelling paddy and wheat crops, two major cereal crops in the Punjab State[2].

Petri plate exposure method was used for trapping the microbes on Kenknight's media[3]. The exposure time to the dust ranged from 30 to 120 sec. The exposed plates were incubated at 25±1°C and 45±1°C for 5 days and 3 days respectively for the growth of mesophilic and thermophilic organisms. After the required incubation period, the cultures were isolated, identified and maintained.

To determine the mycotoxin production potential of the actinomycete cultures, the methods Mishra and Murthy[4] and of Lacey (personal communication) were used. Isolates were grown as stationary cultures, in duplicate at 37°C for 6 weeks on Yeast Malt Glucose broth[5]. In 250 ml flasks, 100 ml broth were taken and inoculated with 1 ml culture suspension prepared by adding 5 ml sterilized distilled water to a sporulating agar culture. After 6 weeks of incubation at 37°C, the flasks showed profuse powdery growth. After harvesting, the culture filtrate was extracted with chloroform and the extracted sample was sealed in a glass vial and stored in dark in the refrigerator.

The crude extract was further analysed by thin layer chromatography with chloroform:methanol (98:2) as developing system. After development the

TLC plates were scanned under ultraviolet light (365 nm) and aflatoxins detected by matching the flourescent intensity and R_f value of the standards with that of the sample on TLC plate.

The isolated cultures which gave positive results for aflatoxin production are listed in table 1 which shows that all the organisms isolated and checked for the aflatoxin production gave positive results.

The crude extracts of these cultures were spotted on TLC plates developed in chloroform : methanol (98:2) and the flourescence observed under UV light. The spots emitting flourescence were marked behind the TLC plates and the R_f values and colour were noted. The spots were found to vary in colour and intensity from blue to green. Comparison of flourescent spots indicated the presence of aflatoxins B_1, B_2, G_1 and G_2 as given in table 2. In the present studies blue violet (BV), light blue (LB), greenish yellow (GY) and light green (LG) were used as indicative for aflatoxin B_1, B_2, G_1 and G_2

Table 1 *Isolation and screening of actinomycetes for aflatoxin production from samples associated with paddy and wheat production*

Isolate	Exposure time (min)	Locality (field)	Process	Aflatoxin** presence
Streptomyces aureofaciens	2	Paddy	Harvesting	+
S. exfoliatus	1	Wheat	Harvesting	+
S. flaveolus	2	Paddy	Harvesting threshing	+
	1	wheat	Harvesting	
S. griseus	2;2;0.5	Paddy	Harvesting, threshing and shelling	+
S. griseoflavus	2;1	Paddy	Threshing, shelling	+
	1	wheat	Harvesting	
S. hirsutus	2	Paddy	Harvesting,	+
*S. violaceoruber**	1	Paddy	Harvesting, shelling	+
Thermomonospora sp*	2	Paddy	Threshing	+
	2;1	Wheat	Harvesting, threshing	+

* Profuse growth at 45±1°C, but for others 25±1°C; ** Aflatoxin producer.

Table 2 *Qualitative estimation of mycotoxins*

Organism	Colour of spots*		R_f value (cm)		Aflatoxin identified
	Standard	Sample	Standard	Sample	
Streptomyces aureofaciens	LB	LB	0.47	0.45	B_2
S. exfoliatus	LB	LB	0.47	0.47	B_2
S. flaveolus	GY	GY	0.40	0.41	G_1
S. griseus	LB	LB	0.47	0.45	B_2
S. griseoflavus	BV	BV	0.54	0.50	B_1
S. hirsutus	LB	LB	0.47	0.56	B_2
S. violaceoruber	LB	LB	0.47	0.47	B_2
Thermomonospora sp.	GY	GY	0.40	0.40	G_1

BV = Blue violet; LB = Light blue; GY = Greenish yellow; The number of spots tested in all the cases was 1.

respectively whereas Shotwell and Hesseltine[8] used bright greenish yellow (BGY) flourescence for aflatoxin G_1. Table 2 shows the production of mostly aflatoxin B_2, followed by G_1 and B_1 and absence of G_2 toxin by these cultures. The R_f values of the standards are in accordance with the value of Pons *et al*[9].

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A NEW REPORT ON DIMORPHISM IN SEEDS OF *CAPPARIS DECIDUA* (FORSK.) EDGEW. IN INDIAN DESERT

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PLANTS that habitually grow where evaporation stress is high and water supply low, show characteristic adaptations to such environment. Seed dimorphism or polymorphism has now been discovered to be a common feature of plants in Indian desert, which includes production of seeds different in sizes, shapes, colours, seed coat patterns, dormancies and germination requirements. The variations although genetically controlled are often influenced by prevailing environmental conditions. The variability in size and weight which is genetically controlled, is often influenced by food during embryo development and seed maturation, accentuated by the prevailing environmental conditions. Some arid zone plant species have already been reported to produce polymorphic seeds which not only differ in their seed coat pattern but also in germination behaviour primarily due to hard seed coatedness[1–3].

Capparis decidua (Forsk.) Edgew., is a very common plant on gravel and compact sandy soil and forms scattered groups of leafless bushes on the sand dunes of western Indian arid desert as well. It is much branched straggling shrub or sometime even a tree where branches are green, zigzag, smooth and leafless during most of the time in the year. Deciduous leaves are minute, fleshy, glabrous, spine-tipped, more or less sessile and boat-shaped, borne every year by copper red newly formed stem branches. Stipules are thorny, straight, sharp and orange yellow, *C. decidua* presents an unique behaviour among the leafless xerophytes, as it produces leaves at such a time of the year when available soil moisture gets depleted to its maximum[4]. Although a common species, very little is known about its seeds and seed germination behaviour. During an exhaustive study on bizarre seed patterns of plants in Indian desert, two types; small (S) and large (L) seeds were discovered in this species which showed remarkable differences in colour, seed coat patterns, weight, size (figure 1) and germination. Seeds of type S, which were pale violet in colour with scattered white markings were much lighter in weight (375 mg) and smaller in size

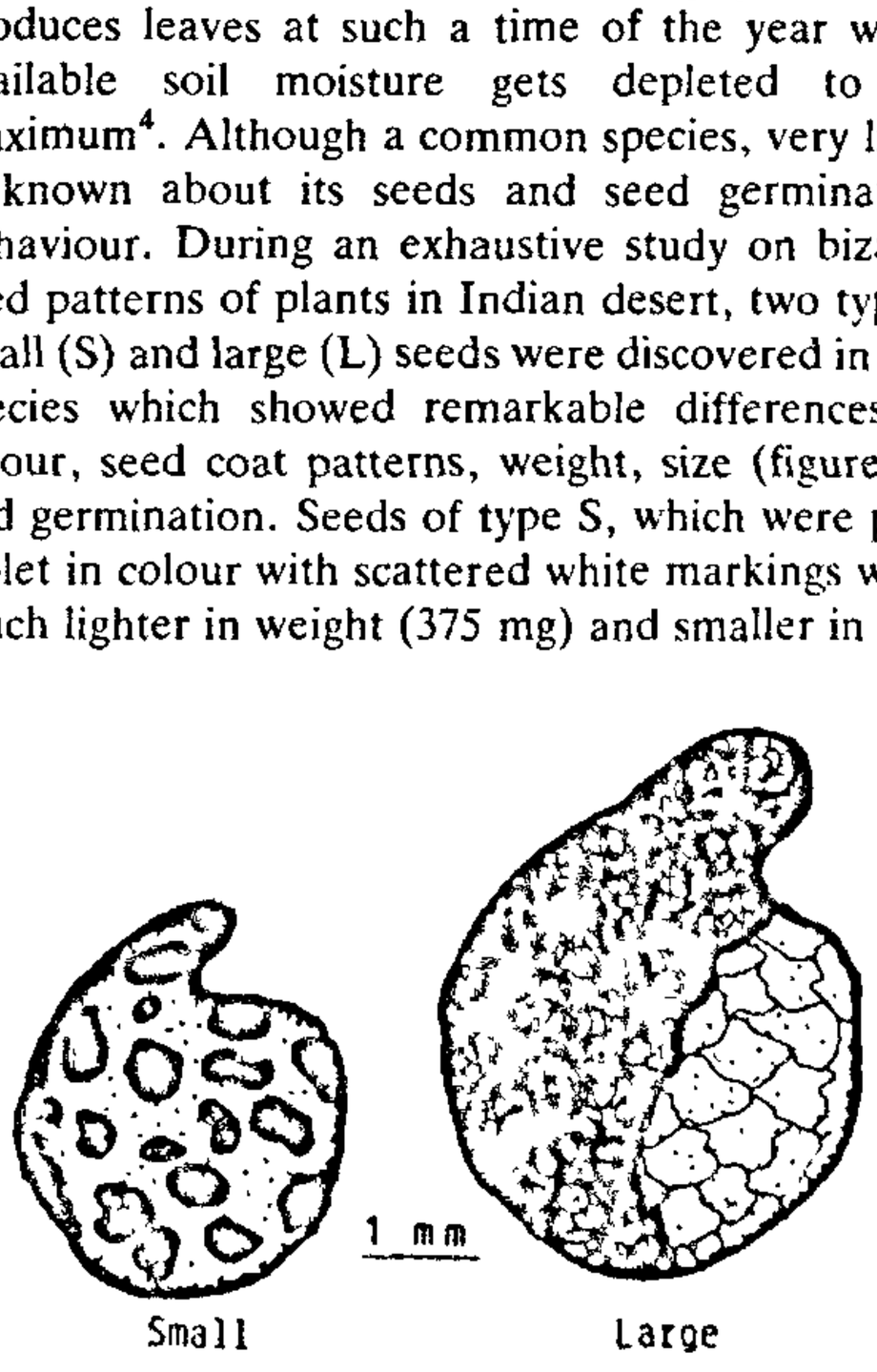

Figure 1. Small and large seeds of *Capparis decidua*.