

ISOLATION OF *SHIGELLA FLEXNERI* FROM TWO TIGER CUBS

Shigella flexneri is a well-known cause of dysentery in man. Perusal of literature does not reveal the association of this organisms with wild life other than monkeys. The present report puts on record the isolation of *S. flexneri* from two tiger cubs.

An investigation was done of dysentery in tiger cubs belonging to the zoo in Karnataka. The history reported was that 5-6 tiger cubs were having dysentery, high temperature and nervous symptoms. Three cubs had died during a period of two weeks. Post-mortem done on two of the dead cubs revealed lesions of toxæmia as evidenced by petechial hæmorrhages on the epicardium and the kidneys. The epicardial sac of both the cubs contained about 20 ml of sero-sanguinous fluid and the intestines were severely congested with hæmorrhagic patches. Heart blood from the cubs was collected aseptically in sterile test tubes. Pieces of liver and intestinal loops ligated at both ends were collected in sterile bottles.

In the laboratory, material from each cub was processed separately. A piece of liver, about a gram of faecal material and heart blood were separately inoculated, both directly and after enrichment with tetrathionate broth, on brilliant green agar plates¹ and were incubated at 37°C for 48 h. Heart blood from one cub, in 0.2 ml volume, was inoculated by intraperitoneal route to an adult albino mouse.

The heart blood of one cub, the liver of the other cub and the intestinal contents of both the cubs yielded a large number of colonies of lactose non fermenting bacteria with a few colonies of lactose fermenters on the brilliant green agar plates. All the colonies of the lactose nonfermenters and lactose fermenters were subcultured on nutrient agar plates for further identification. The mouse inoculated with the heart blood of one cub died three days after inoculation and the heart blood of the mouse yielded pure colonies of lactose nonfermenters on brilliant green agar plates. The lactose nonfermenting colonies from both the cubs were further characterised and identified as *Shigella flexneri*^{1,2}. A plate test conducted using positive sera for *S. sonnei*, *S. boydii* and *S. flexneri* resulted in rapid agglutination of the isolates only with serum of *S. flexneri*. All the lactose fermenting colonies from the two cubs were identified as *Escherichia coli* and were found to be nonpathogenic to mice.

S. flexneri is a primary entero-pathogen of man and monkeys³. Human infections are occasionally acquired from monkeys⁴. Available literature does not reveal this organism as a cause of dysentery in tigers. There are no records, in India, of its isolation from any domestic or wild animals. The probable

source of infection of the tiger cubs could be either of primate or human origin.

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HELOPELTIS ANTONII SIGN. AS A PEST OF *MORINGA OLEIFERA*

Helopeltis antonii S. (Miridae : Hemiptera) has been observed infesting the drum-stick plant *Moringa oleifera* in the districts of Trivandrum and Quilon. Though this bug has been recorded previously on such crops as tea, cashew, guava, grapevine, etc. (Nair¹; Nayar *et al*²), this is the first record of it as a pest of *Moringa*.

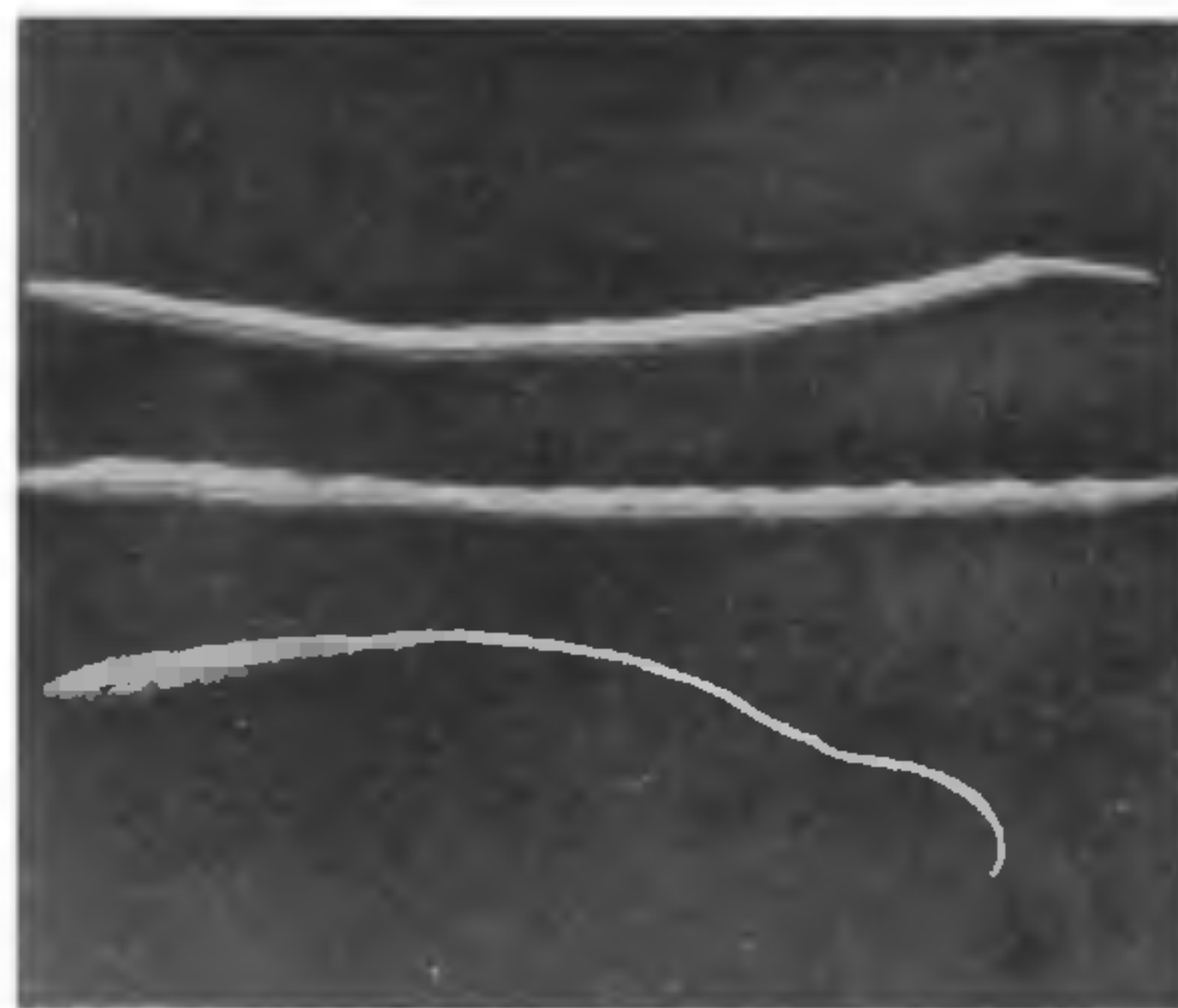


FIG. 1. Fruits of *Moringa*, (upper) healthy, (middle) with white patches caused by *H. antonii*, (lower) young fruit partially developed due to the attack.

The bug has been observed to feed and breed on the plant. As a result, the terminal shoots die, dry up and show die-back symptoms; flowers drop and the whole inflorescence dries up. The surviving fruits show white patches on them and dry up ultimately; when young fruits are attacked they may fail to develop fully (Fig. 1). The attack is often serious and the

whole plant presents the appearance of a dead tree with no leaves or flowers.

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MEIOTIC STUDIES IN *MOMORDICA CYMBALARIA* FENZL

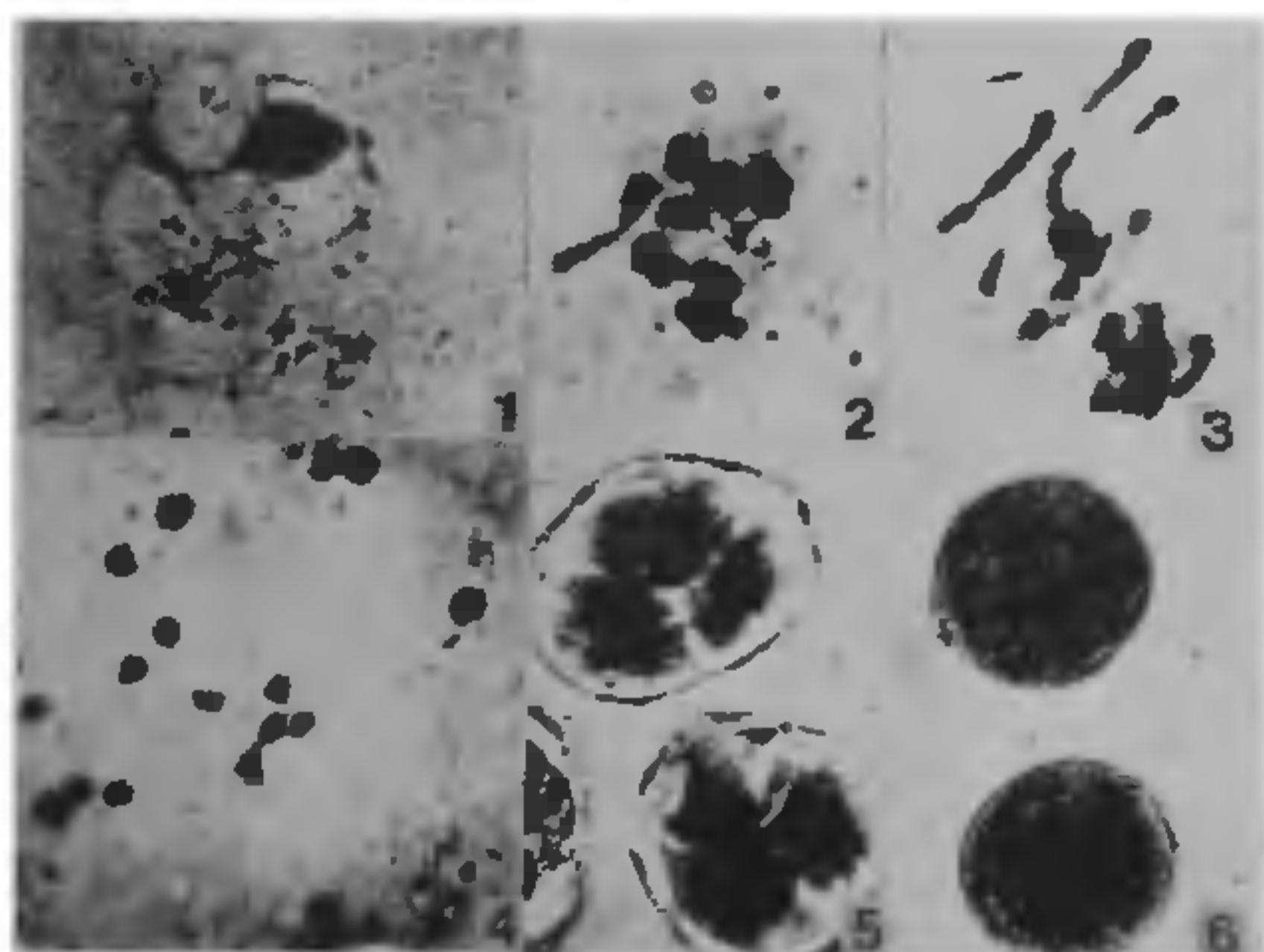
FLOWER BUDS were collected from *M. cymbalaria* plants growing as weeds on the bunds of cotton fields. Anther squashes were made in 1% propionocarmine stain. The chromatin bodies were deeply stained from early meiotic stages. At pachytene (Fig. 1) and at metaphase I (Fig. 2), eight well paired bivalents were observed. In the side view differences in the size of bivalents could be noticed (Fig. 3). Eight bivalents could be grouped as four small, three medium and one large, the large bivalent being attached to the nucleolus. On an average two chiasmata per bivalent were observed at diakinesis and 1.8 at metaphase I. Second meiotic division was regular and normal separation of bivalents (Fig. 4) and chromatids were observed at anaphase I and II respectively. Tetrads (Fig. 5) formed were normal and pollen grains

(Fig. 6) were cent per cent fertile when stained with propiono-carmine and IKI solution.

A chromosome number of $2n=22$ in *M. charantia* (McKay³, Bhaduri and Bose¹, Yamaha and Suematsue⁶); $n=11$ in *M. balsamina* (McKay⁴, Whitaker⁷); $2n=28$ in *M. dioica* (Richharia and Ghosh⁵ and Riley⁸); $2n=28$ in *M. clamatidea* Sond. (Riley⁸) and $2n=44$ in *M. foetida* Schum. et Thonn. (Mangenot and Mangenot²) have been reported. It thus appears that aneuploidy might have played a significant role in the evolution of the genus *Momordica*. The $n=8$ chromosome number reported in *M. cymbalaria* in the present note further supports this.

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FIGS. 1-6. Fig. 1. Pachytene showing paired chromosomes and one large bivalent attached to nucleolus. Fig. 2. Metaphase I polar view with 8^u. Fig. 3. Metaphase I (side view with 8^u showing four small + three medium + one large bivalent. Fig. 4. Anaphase I showing normal separation. Fig. 5. Normal tetrads. Fig. 6. Fertile pollen grains. (All chromosome plates magnified 1950 × and tetrad and pollens 650 ×.)

NARIYAL CHUDI, A PROMISING RICE VARIETY

IN a survey of the rice germ collection, the authors located an indica rice variety, with interesting characters that required investigation. The variety belonged to the Chudi group which is mostly confined to the Bastar District of Madhya Pradesh¹.

Unlike the normal height of a rice plant of 2 to 6 feet², Nariyal Chudi exhibited a height of 8 feet and above (Fig. 1). In spite of having a remarkable height, the variety did not lodge under the normal fertility level of $N_{40}P_{30}$ and K_{15} as recommended for tall varieties of Madhya Pradesh³. The variety withstood a water level of 1 foot thus making it suitable for water-logged conditions. It is a medium tillering, non-pigmented, erect variety of 150 days duration. Culm—long, breadth, 4.5 cm. Leaf—green blade, pubescent surface, breadth, 2.9 cm. Panicle—length 33 cm and compact, Spikelet—awnless, green when young and straw coloured at ripening; grain long bold, length, 6.4 mm, breadth, 2.5 mm. Kernel—white, non-glutinous and non-scented. Yield—upto