

## CHROMOSOME NUMBER OF A SEMI-WILD FORM OF OKRA

An okra form popularly known as "Thamaravenda" is widely occurring in a semi-wild form in Kerala. Its pods are edible and hence cultivated casually to a limited extent in the homestead. Morphological features of pods, epicalyx and leaves of this okra form are distinct in many aspects from the widely cultivated species *Abelmoschus esculentus*. This species form is a long duration crop having perennial nature (Fig. 1). It respond to ratooning and is fairly resistant to yellow vein



Fig. 1. Semi-wild form of okra

mosaic (YVMV). The pods are stout, short and green with purple tinge. The species of the genus *Abelmoschus* can be distinguished based on their chromosome number (Waalkes, 1966 and Charrier, 1984). In an attempt to find out the species status of *Thamaravenda* it was imperative to conduct a detailed cytological study on this okra form. The plants were raised in the field as well as in pots during 1993-95 at the Department of Olericulture, College of Horticulture, Vellanikkara for taking the

flower buds for meiotic studies. Considering the very large number- and smaller size of chromosomes in the *Abelmoschus* species the cytological study was restricted by observing the meiotic configuration of chromosomes only. The young flower buds were taken from the plants between 5.15 a.m. to 6.30 a.m. when the maximum number of pollen mother cells (PMCs) were in the stage of division. The collected buds were cut half way longitudinally and fixed immediately in Carnoy's fixative consisting of six parts of absolute alcohol, three parts of chloroform and one part of glacial acetic acid for 24 hours. Then the buds were transferred to another fixative containing three parts of ethyl alcohol and one part of acetic acid, the acetic acid part was saturated with ferric acetate which served as a mordant. After 24 hours, further meiotic preparations were made by staining the anthers with 0.5 per cent acetocarmine and the slides were observed under a microscope to study the chromosome number and its association. Microphotographs were taken from temporary slide preparations using Leitz Biomed microscope attached with an automatic camera. Pollen fertility of the species was also assessed by staining the pollen grains in Alexander's stain as per Alexander (1980).

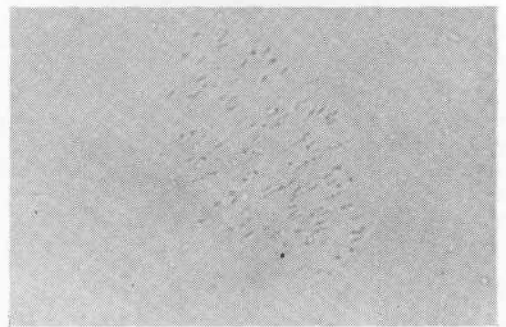


Fig. 2. Metaphase-I in the semi-wild okra showing 92 bivalents (x 1000)

The chromosome number of this okra form was confirmed as  $2n = 184$ . It formed 92 bivalents in the metaphase-I (Fig. 2). In some PMCs observes very few univalents as low as

six were also noticed due to the **precautious** separation of some **bivalents** at this stage (Table 1). The subsequent stages of **meiosis** were regular finally forming the tetrads. The average pollen **stainability** was 97.08 per cent and mean diameter was 0.0593  $\mu\text{m}$ .

The somatic chromosome number reported for the widely grown species *A. esculentus* ranged from  $2n = 72$  to 144 (Ford, 1938; Datta and Naug, 1968). Hence the chromosome number  $2n = 184$  established for *Thamaravenda* in the present study does not conform to that of *A. esculentus*. Charrier (1984) classified the *Abelmoschus* species having somatic chromosome number in the range of 184 to 200 as *A. cai-*

*lei*. The present investigation on the cytology of *Thamaravenda* confirming its chromosome number as  $2n = 184$ , provide a strong evidence that this **okra** form must belong to *A. caillei*. Further the small and stout pods, winged **epicalyx** and broad leaves of this okra form closely resembled *A. caillei* described by Charrier (1984). *A. caillei* has a long period of domestication in West Africa. Probably this species might have been introduced to this part of the country by see route traders fairly early.

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College of Horticulture  
Vellanikkara 680 654, Trichur, India

**Reena Susan Chacku**  
**K. V. Suresh Bahu, S. Rajan**

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