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Short communication

Development of novel character in okra [*Abelmoschus esculentus* (L.) Moench]

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ABSTRACT

Transgressive segregation in the population of IIHR-31-1-2 x Arka Anamika BC_3 F_1-F_6 generations led to the development of, various novel characters such as, ridgeless fruits (round fruit) and enhanced nodal productivity bearing short internodal length in okra selection-1, which was found to be promising for cultivation with high yield and good fruit quality. It can be grown both during Kharif and summer seasons. Okra selection–1 was also found to exhibit smooth fruits, high yield potential with sturdy plant habit and field tolerance to fusarium wilt and YVMV. Due to rapid rate of increase of processing in okra by freezing and canning, Okra selection I may be an ideal fruit type for freezing because of its short, smooth, dark green and round or multifaceted fruits with low mucilage content.

Key words: Novel character, ridgeless, introgression, processing

Okra (*Abelmoschus esculentus* (L) Moench) commercially cultivated in India. India is the largest producer of okra in the world, which contributes about 4% of total vegetable consumption in most developing countries (Eftal Duzyanman, 1997). Okra is extensively cultivated during the spring-summer (March-June) and rainy (July-September) seasons for its green tender fruits. Okra is increasing in popularity. The rapid expansion of okra processing by freezing and canning in the last three decades has been responsible for the increase of commercial okra production, as well as the development of suitable cultivars such as Louisiana Green Velvet. The ideal fruit type for freezing should be short, dark green, round or multifaceted (Sistrunk *et al*, 1960). Canned okra requires colour retention, low mucilage content and low fiber content (Woodroof and Shelor, 1958).

During the last 25 years a good deal of efforts have been made to enrich its genetic variability, and in developing promising cultivars, namely Arka Anamika and Arka Abhay. These are adapted to a wide range of agro-climatic conditions and cropping patterns, possess better fruit yield and quality combined with Yellow Vein Mosaic Virus resistance (Dutta, 1990). Germplasm characterization is essential for selection of distinctly variable characters. During 1998, the breeding work was initiated at Indian Institute of Horticultural Research, Hessaraghatta and available germplasm was characterized and IIHR-31-1-2 was selected [NBPGR, New Delhi, original sources from Philippines (EC-No-189926)].

Gene introgression was achieved through normal hybridization between IIHR-31-1-2 and Arka Anamika, followed by backcrossing with YVMV resistant commercially cultivated variety Arka Anamika (Fig1.). In the advanced progenies of BC_3 F_1-F_6, a recombinant line having ridgeless fruits, enhanced nodal productivity, shorter internodal length, smooth fruits and, high yield with sturdy plant habit was identified. (Fig 2 & 3). The salient features

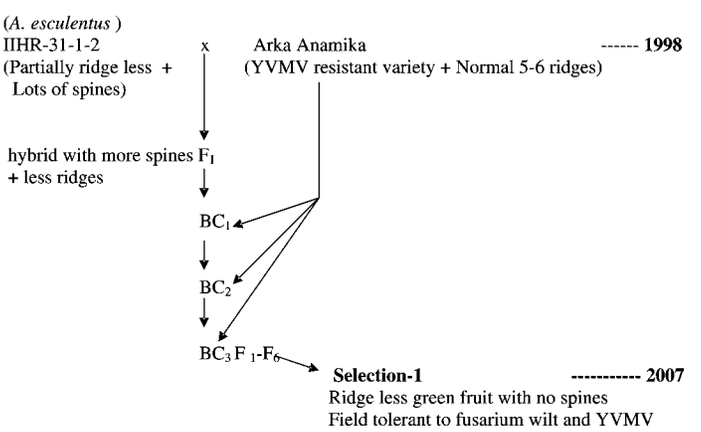

Fig 1. Pedigree of ridge less okra novel line

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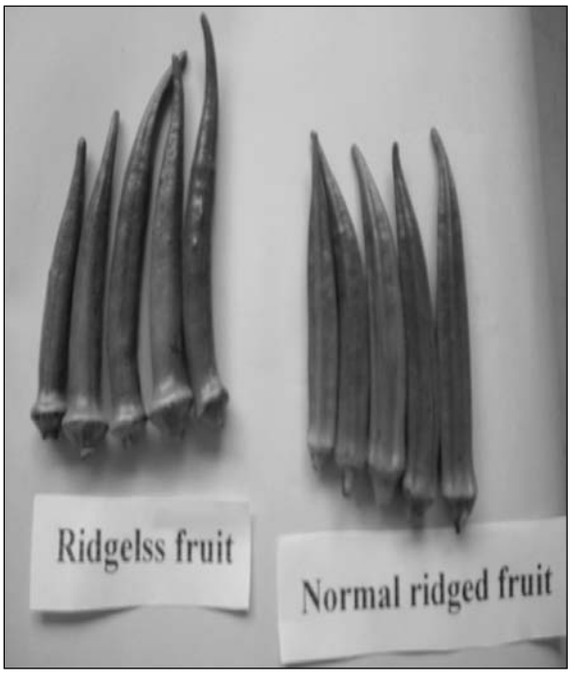

Fig 2. Ridgeless and normal ridged fruit

Fig 3. Selected line bearing ridgeless fruit

of the recombinant line are listed below:

- Plants are short to medium (75-100 cm), bushy, erect and well branched
- Short to medium fruit length (8-10 cm)
- No ribs on the fruit, spineless, lush green, tender, and are borne in two flushes
- Fruit stalk is long and easy to snap
- Shorter internodal length
- Low fiber and mucilaginous content
- Good cooking and keeping quality
- Suitable for canning and freezing
- Field tolerant to fusarium wilt and YVMV
- Yield 15-20 tonnes /ha in 120-135 days
- Suitable for Kharif and summer season

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