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## Collecting castor (*Ricinus communis* L.) landraces from Tamil Nadu, India

[P. Ashoka Vardhana Reddy](#) [K. Anjani](#) [S. Manikyam](#) **Introduction**

The significance of the Indian castor crop in recent years has increased as it brings in a sizeable amount of foreign exchange to the country. India has a special place in the international castor oil trade as it produces more than one-third of the world supply of castor oil. Castor is grown for its oil-yielding seeds, which contain 35–55% oil. Castor oil has gained its importance because of its utility in the fields of paints, lubricants, soaps and detergents, printing inks, perfumes, adhesives, pharmaceuticals and cosmetic industries. India is one of the primary centres of origin of castor (Popova 1930). The vast indigenous variability existing in the country would certainly provide a wide spectrum of useful genes for crop improvement. Attempts were being made to collect, conserve and study the variability from the entire country (Anjani et al. 1994, 1999; Anjani 1995; Duhoon et al. 1996). As part of it, an exploration was undertaken in Tamil Nadu state under an NATP–Plant Biodiversity Project during April–May, 2001.

### Collecting site

Collection was carried out across the Tamil Nadu and adjacent Kerala states. The collecting sites lie between 8.15°N and 77.88°E at altitudes ranging from 100 to 1600 ft asl. Samples were collected from 16 districts of Tamil Nadu and two adjoining districts in Kerala (Figure 1). Collections were made from farmer's fields, roadsides, garbage, river and canal banks and undisturbed forest habitats on upper and lower hill slopes. Landraces were being maintained by farmers and grown on field bunds as well as part of an intercrop or mixed crop with tapioca, sugar cane, cotton and groundnut. Landraces were grown as a safeguard in case the main crops failed to survive or yield under dry conditions.

### Variability in collection

105 samples (97 from Tamil Nadu and eight from Kerala) were collected, of which 82 were landraces from Tamil Nadu and the remaining were of wild types. Distinct variability was observed among the samples particularly for stem colour (red, green, mahogany, mixed), bloom (no bloom, single, double and triple bloom), capsule size (<1–3.5 cm) and colour (red and green), seed size (0.5–1.5 cm) and colour (red, black and brown). Bloom character is not preferred by the major castor sucking pests such as jassids and thrips (Kulkarni and Ramanamurthy 1977). In the total collection, 14% of samples had single bloom, 22% double bloom and 12% triple bloom. The other very promising characters observed in the landraces were size and nature of the spike. The spikes were very long (80–90 cm) and broad (15–20 cm)

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possessing a female to partially female nature (Figure 2). These characters of the spike showed a direct, positive relation with yield in castor (Raghuma Reddy et al. 2000). Loose spikes are generally preferred in breeding programmes as breeders assume that loose spikes prevent free movement of the capsule borer and quick spread of botrytis grey rot. In our collection, 28% of the samples possessed loose spikes, 48% very loose and 24% compact to firmly compact spikes. Another desirable trait possessed by all landraces was non-dehiscence of capsule. In general, wild types possess dehiscent capsules for easy dispersal of seeds. However, the non-dehiscence nature in landraces could be attributed to careful selection practiced by farmers over years to prevent seed loss due to shattering.

Two distinct plant types—very tall—lanky (60%) and medium tall—bushy (40%)—were observed among the landraces. The very tall—lanky type was mainly grown on crop bunds or as a border crop, whereas the other type was preferred for intercropping. The landraces were planted at the Directorate in July, 2000. Only two landraces showed segregation for morphological traits while within-line uniformity was observed in the remaining landraces in the progeny generation and inherited desirable parental traits. This could be ascribed to the great isolation distance existing between collecting sites and abundance of the plant's own pollen near the female flowers preventing contamination from other pollen sources. The landraces with long female or partially female spikes with non-dehiscence nature and bloom would directly find a place in breeding programmes for high seed yield. Also, the red capsule type would be useful as a genetic marker.

### References

- Anjani K. 1995. Potential of castor germplasm collected from Bihar. *Crop Improvement* 22(2):228-231.
- Anjani K, Chakravarty SK, Prasad MVR. 1994. Collecting castor (*Ricinus communis* L.) germplasm in North-Eastern Hill Province of India. *IBPGR News Letter for Asia, The Pacific and Oceania* 17:13.
- Anjani K, Yadav WS, Duhoon SS. 1999. Collecting castor (*Ricinus communis* L.) germplasm in north-western India. *Plant Genetic Resources Newsletter* 120:48-51.
- Kulkarni LG, Ramanamurthy GV. 1977. Castor. Indian Council of Agricultural Research, New Delhi, India.
- Popova GM. 1930. Castor Oil Plant. Lenin Academy of Agricultural Science and Institute of Applied Botany and New Culture, Leningrad.
- Raghuma Reddy P, Maruti Sankar GR, Vanaja M, Hanumanta Rao C, Venkateswarlu S, Eastin JD. 2000. Studies on genetic parameters in castor (*Ricinus communis* L.) under irrigated and rainfed conditions in an alfisol. *Indian Journal of Dryland Agricultural Research and Development* 15(1):73-77.

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