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Short Communication

COLLECTING CASTOR (*RICINUS COMMUNIS* L.) AND *JATROPHA* GERMPLASM IN INDO-GANGETIC PLAINS

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India is the secondary centre of diversity for castor and ranks first in acreage in the world. Castor is an important oilseed crop of India. Its oil has great industrial and medicinal value. The species is common throughout the country, particularly in the drier tropical climate.

For collection of diversity in castor from Indo-gangetic plains including Patna, Begusarai, Samastipur, Muzzaffarpur, Munger, Bhagalpur, Nalanda districts in Bihar, were explored in October, 1992. The parts of central Uttar Pradesh, Bundelkhand region and adjoining Madhya Pradesh were explored in October, 1994. The surveyed region lies between 75° to 87° East longitude and 20 to 27° North latitude. Coarse grid method of sampling at 10-15 km intervals and occassionally fine grids, in the areas of the concentration of diversity were followed (Jain, 1975 and Hawkes, 1976). The bulk, random and non-random selective methods of sampling was done to capture maximum diversity. Depending on the availability a few to 400 capsules/seeds were collected. The passport data and *in-situ* observations on highly heritable/ important characters were recorded during exploration and 100 seed weight, length and breadth of seed were also recorded in laboratory.

The Indo-gangetic plains are the centre of botanical variability in castor (Stuhlmann, 1909; Kulkarni and Ramanamurthy, 1977; Moskin, 1986) where it grows as escape near roadsides, back/court yards, temple compounds, wastelands and most preferably on garbages around. The organized cultivation of castor as a main crop is rarely seen in the targeted areas except in *diara* lands of river Yamuna near Kalpi and Ghatampur. Castor is grown, by and large, as guard/fence rows to protect the main crop from men/animals, frost,

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bright sun and as support to the viny crops like lablab bean, winged bean and cucurbits etc. It is frequently inter/ mixed cropped with chillies, groundnut, pigeonpea, cucurbits, beans and other vegetables.

Of 192 seed samples of castor, 83 were collected from 63 sites in Bihar. The maximum number of 21 samples were collected from Ganga river beds around Patna and followed by 16 collections from Begusarai, 10 from Samastipur, 9 from Muzzaffarpur, 7 from Munger, 5 each from Bhagalpur and Nalanda, 2 each from Dhumka, Khagaria and Deoghar and 1 each from Dhanbad, Ranchi, Hazaribagh, Nawada and Vaishali. One hundred and nine population samples representing local diversity in castor and 18 seed samples in *Jatropha* were collected from 90 sites in parts of central U.P., Bundelkhand region and adjoining areas of M.P. (Fig. 1). The germplasm was sampled from diverse habitats including roadsides, courtyards/backyards, waste lands/garbages around, cultivated fields, farm stores and local markets. In castor 18 samples represented the diversity from Hamirpur, 16 each from Banda and Jhansi, 14 from Jalaun, 13 from Kanpur, 12 from Firozabad, 10 from Etawah and 8 from Allahabad. The collections exhibited remarkable variation in seed colour (white, brownish white, brown, red and chocolate, black without and with consipicuous mottling), seed size (small, medium and bold), seed shape (elongated, square, oblong and triangular), appearance (shining and dull), plant/spike colour (green, sun red and golden), spike (short/long and compact/loose in conical, umbrella and irregular shapes), leaf size (small/large), leaf lobing (deep/shallow), growth habit (fast growing tall types and slow growing) branching (convergent/divergent), shattering and non shattering types and weedy forms. The extent of variability in 100 seed weight was very high from as low as 9.3 g (SDKA-1) to as high as 79.0 g (SDKA-39). Seed length varied from 0.82 cm (SDKA-15 and SDKA-94) to 1.85 cm (SDKA-102). Seed breadth exhibited variation from 0.57 cm (SDKA-1) to 1.47 cm (SDKA-48). Similar trends in variability have been reported in castor collections from Bihar (Anjani et. al., 1993)

The germplasm of *Jatropha* represented variability in two species, comprising 15 samples in physic nut (*Jatropha curcas*) and three samples in *J. gossypifolia*. *Jatropha gossypifolia*, vernacularly known as *jangli arandi/van arandi/safed arand or bagbheranda* was found distributed in the areas between Jhansi and Mahoba *via* Mauranipur, with high concentration of diversity around Barua Sagar. The diversity further intensifies south eastwards. Two distinct types i.e. green coloured and red coloured occurred simultaneously within the same populations as well as separately in different populations. Three population samples of small seeded, early maturing types were collected from roadsides. Physic nut (*Jatropha curcas*) is locally known as ratan jyoti and mainly distributed in Ratalam, Dewas, Khargaon, and Khandwa districts in semi-wild state.

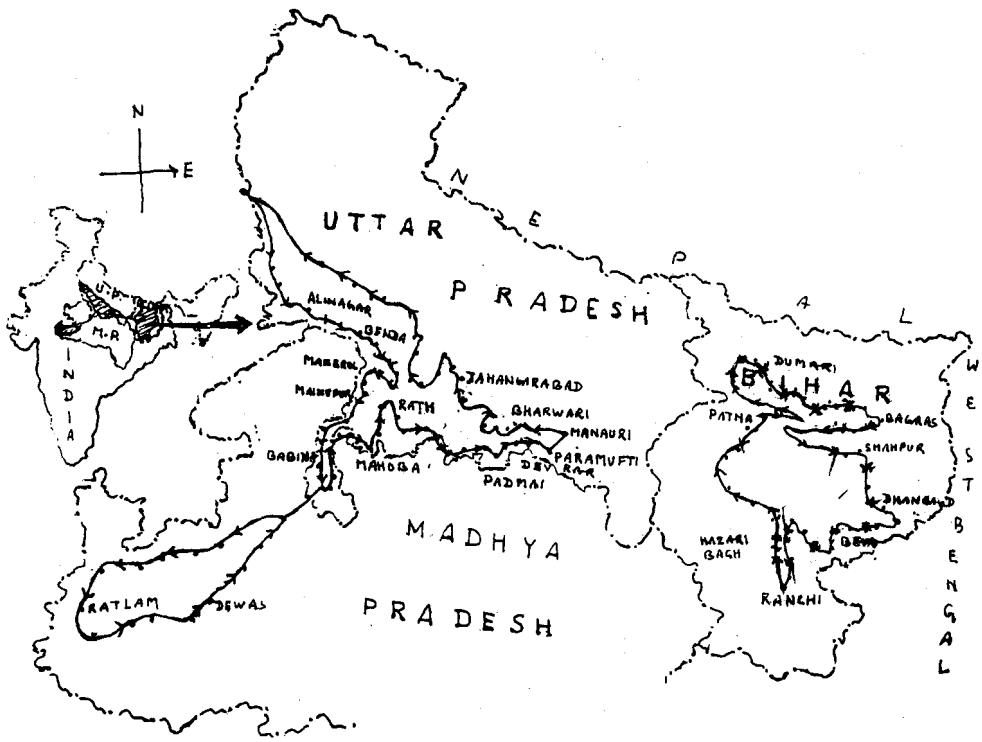

Fig. 1. Exploration routes for castor collection in Indo-Gangetic plains

Though the oil yielding potential of physic nut has been recognized recently, the people grew it as fence rows in the vicinity of villages to protect their fields/gardens from stray animals as the animals do not graze on it. Besides, physic nut is extremely useful in conservation of soil and water and also acts as repellent to rats in the crops prone to rodent attack. Population samples of physic nut were collected from one to seven years old plants/trees and represented the variability in plant height (1-5m), plant colour (green, dark green and sun red), capsule size, capsule length (20-30 mm), seed size (small to bold), seed shape and colour, leaf lobbing (3-5), bearing capacity, capsule (shedding/non-shedding types, shattering/non-shattering types) and early/late maturing types. The tribal people use the tender shoots of this tree to brush their teeth which, they believe, improves the eye sight and therefore the popular name *"ratan jyoti"* has been derived/originated for this plant.

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