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Short Communication

COLLECTING SAFFLOWER GERMPLASM FROM WEST BENGAL

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Safflower (*Carthamus tinctorius* L.) is one of the important oil yielding crops in India. It is mainly cultivated in Maharashtra, Karnataka and Andhra Pradesh. The other non- traditional areas of safflower cultivation are West Bengal, Orissa and base of the Himalayas where local variability still exists. Safflower initially grown for extraction of dyes and preparation of herbal medicine and a substitute/adulterant for saffron is now mainly grown for oil and other table preparations. In West Bengal, the crop has been cultivated for a long time. Now the farmers in West Bengal grow it as a border crop around potato and vegetable crops. It was learnt from cultivators that the crop was earlier grown as a sole crop for extraction of dye and for home made preparations like *murrhi* and *chalbhaza*. It is apprehended that the crop may be totally wiped out in future from these areas because of non-availability of market and non-availability of oil mills (local ghani) although there is possibility of using paddy fallow land for this crop. It was therefore thought necessary to collect and conserve the important genetic wealth from these areas of West Bengal which is in the verge of extinction.

The collection mission was undertaken in Midnapore, Bankura, Purulia, Birbhum, and Murshidabad districts in West Bengal during April 1997. The area explored falls between 21°.68' - 24°.85'N longitude 85°.80' - 38°50'E latitude. During the exploration, most of the areas of occurrence were covered. Passport data were noted at the collection site. Observations were taken as per the descriptors for safflower (IBPGR, 1983). Morphological and quantitative observations on the growth habit, spiny/non spiny, flower colour, location of branches on main axis, no. of primary branches, flower colour at blooming and fading and seed colour were recorded at the collection site whereas the

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metrical characters *viz.*, seed length, seed width, 100 seed weight were recorded in the laboratory. The oil content (%) was analysed at the Directorate of Oilseed Research, Hyderabad.

Considerable variability was observed in morphological and quantitative traits. The district-wise safflower collections includes Midnapore (7), Bankura (10), Purulia (1), Birbhum (2) and Murshidabad (4). These accessions were

Table 1. Range of variability for some important quantitative characters in Safflower germplasm

IC no.	Seed length (mm)	Seed width (mm)	100 seed weight (g)	Oil content (%)
IC-208230	6.34	3.94	3.15	20.2
IC-208231	6.44	4.15	2.54	19.5
IC-208232	6.58	3.78	2.29	16.5
IC-208233	6.54	4.14	2.90	24.0
IC-208234	6.10	4.25	2.60	N.R
IC-208235	6.24	4.24	2.95	16.5
IC-208236	6.00	3.80	2.59	N.R
IC-208237	6.13	4.03	2.29	N.R
IC-208238	6.28	3.94	2.71	22.6
IC-208239	6.78	4.75	2.55	21.5
IC-208240	6.00	3.80	2.18	N.R
IC-208241	6.50	3.95	1.60	N.R
IC-208242	6.10	3.88	1.72	N.R
IC-208243	5.65	3.75	2.46	22.0
IC-208244	6.55	4.08	3.82	24.5
IC-208245	6.30	4.25	2.62	25.5
IC-208246	6.64	4.64	4.34	20.5
IC-208249	6.85	3.95	3.58	21.5
IC-208250	5.44	3.90	2.75	25.5
IC-208251	5.94	4.00	2.93	25.5
IC-208252	5.90	3.80	2.29	20.3
IC-208253	5.90	3.64	2.98	25.3
IC-208254	6.04	3.94	2.73	25.5
IC-208255	5.40	3.54	2.63	24.5
Range	5.4-6.85	3.54-4.75	1.6-4.34	16.5-25.5
Mean	6.19	4.0	2.63	22.3
SE ± M	0.07	0.05	0.11	0.68
CV (%)	6.09	6.87	22.27	12.97

N.R. - Not recorded due to small quantity of seed

collected from a total of 22 diverse agroecological niches. The altitude of the areas varies from 60-345 metre above mean sea level (msl). The soil is mostly lateritic in hill zones and 10 am and sandy loan in Indo-gangetic plain regions. The growth habit varied from erect to bushy type. The leaves were mostly lanceolate, narrow with upper leave ovate. Most of the accessions had flower colour yellow during bloom stage and red, dark red and orange red at fading. Most of the accessions had medium size capitula having diameter less than 3.0 cm. Very few accessions were non-spiny or spine present at the tip of the leaf with the determinate type of growth. The seed colour was mostly white or cream colour with medium seed index and thick hull. Significant variation was observed among the quantitative characters. The plants were mostly tall or bushy type. The number of primary branches varied from 10-15 per plant, maturity 150-160 days, seed length 5.4-6.85 mm, seed width 3.54-4.75 mm, 100 seed weight 1.6-4.34 g and percentage of oil content 16.5-25.5%. The variation in days of maturity, no. of primary branches per plant and 100 seed weight also falls within the range of variability as reported by Mehtre and Hegde (1997). High seed weight was observed in IC-208246 (4.34 g) followed by IC-208244 (3.82 g) IC- 208249 (3.58 g) whereas high oil content of 25.5% was recorded in IC-208245, IC-208250 and IC-208251 followed by 24.5% oil content in IC-208244 and IC-208255. Coefficient of variation was observed high for 100 seed weight (22.27%) followed by oil content (12.97 %). This shows the diversity among the safflower accessions for 100 seed weight (Table 1).

In general, there was less incidence of serious pests like aphids and *Heliothes* and the growth of roots was not deep among the accessions collected from the targeted areas which may be due to availability of moisture at the surface level.

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