205471 were stable performers under both stress and irrigated conditions, whereas the performance of check GT-10 varied depending upon conditions.

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Identification of trait specific accessions from safflower germplasm collected in Maharashtra

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ABSTRACT

A set of 59 safflower germplasm accessions collected during exploration tour to nine districts of Maharashtra during 2017 were evaluated for two seasons (2017-18 and 2018-19) alongwith two checks. Trait specific accessions for seed and oil yield (14) and early flowering (8) were identified for utilization in breeding.

Keywords: Germplasm collection, Maharashtra, Safflower, Trait specific accessions

The ICAR-Indian Institute of Oilseeds Research, Hyderabad holds 7027 accessions of safflower germplasm which are being systematically evaluated (Mukta, 2012). Augmentation is a basic requirement for any germplasm repository to supplement the trait specific germplasm for utilization in breeding. Sixty three safflower accessions were collected during an exploration tour to Parbhani, Beed, Hingoli, Latur, Nanded, Osmanabad, Satara, Sangli and Solapur districts of Maharashtra (Latitude 16.01-19.29°N Longitude 74.3-78.19°E) during first fortnight of March, 2017 in collaboration with NBPGR-Regional Station at Akola (Mukta and Chand, 2017). The germplasm was evaluated for two seasons for the identification of trait specific accessions.

MATERIALS AND METHODS

Out of the 63 accessions collected from Maharashtra, 59 accessions were evaluated during *rabi* season of 2017-18 and 2018-19; four accessions did not germinate. The trial was conducted in Augmented block design withsingle row of each accession (5 m) and spacing of 45 cm x 20 cm along with two checks. All standard agronomic practices and prophylactic measures were adopted to raise a good crop and observations were recorded on whole plot basis.

RESULTS AND DISCUSSION

Wide variability was recorded for days to 50% flowering (65-87), seed yield (11.1-48.9 g/plant), 100-seed weight (4.0-7.6 g), oil content (25.2-30.1%) and oil yield (2.9-13.4 g/plant) among the 59 accessions based on mean data for two years. The most promising accessions were identified for (1) seed yield (>34 g/plant) and oil yield (≥10 g/plant); (2) early flowering (65-75 days) (Table 1). Earlier studies have revealed considerable variation in accessions collected from different safflower growing regions of the world (Mukta, 2012) from which trait specific accessions have been identified (Mukta *et al*., 2017). Based on better performance than the check varieties, trait specific accessions for seed and oil yield (14) and early flowering (8) were identified for utilization in breeding.

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Table 1Promising trait specific accessions identified (Mean of 2017-18 and 2018-19)

Accession no.	Collector No.	Days to 50 % flowering	Seed yield/plant (g)	100-seed weight (g)	Oil content (%)	Oil yield (g/plant)
High seed and oil yield						
GMU-7877(IC-0631941)	NMDC-17	83	49.0	6.4	27.4	13.4
GMU-7911(IC-0631975)	NMDC-51	82	45.9	7.2	28.0	12.8
GMU-7880(IC-0631944)	NMDC-20	78	45.6	6.2	28.8	13.2
GMU-7884(IC-0631948)	NMDC-24	87	43.6	5.1	29.1	12.7
GMU-7901(IC-0631965)	NMDC-41	78	41.0	5.8	29.0	11.9
GMU-7875(IC-0631939)	NMDC-15	83	40.9	5.0	27.5	11.2
GMU-7907(IC-0631971)	NMDC-47	86	40.7	7.2	27.2	11.1
GMU-7871(IC-0631935)	NMDC-11	86	40.5	6.5	27.2	11.0
GMU-7873(IC-0631937)	NMDC-13	83	39.9	5.2	28.8	11.5
GMU-7869(IC-0631933)	NMDC-9	87	38.7	6.5	28.0	10.8
GMU-7920(IC-0631984)	NMDC-60	86	37.6	7.0	26.9	10.1
GMU-7922(IC-0631986)	NMDC-62	82	37.1	7.2	28.2	10.5
GMU-7916(IC-0631980)	NMDC-56	85	36.5	6.3	27.9	10.2
GMU-7881(IC-0631945)	NMDC-21	87	34.9	6.8	28.7	10.0
Early flowering						
GMU-7898(IC-0631962)	NMDC-38	65	11.1	5.9	26.3	2.9
GMU-7899(IC-0631963)	NMDC-39	69	29.3	5.3	27.3	8.0
GMU-7894(IC-0631958)	NMDC-34	72	21.1	4.8	28.9	6.1
GMU-7895(IC-0631959)	NMDC-35	74	22.2	5.2	29.0	6.5
GMU-7903(IC-0631967)	NMDC-43	74	26.6	6.6	27.5	7.3
GMU-7896(IC-0631960)	NMDC-36	75	24.1	5.2	28.3	6.8
GMU-7909(IC-0631973)	NMDC-49	75	21.0	7.1	27.4	5.8
GMU-7879(IC-0631943)	NMDC-19	75	27.7	5.4	30.0	8.3
Checks	A-1	91	29.9	6.6	23.9	7.1
	Bhima	88	29.0	6.8	26.9	7.8

Oils seeds performed better for different sources of irrigation water as compared to wheat and chickpea in Malaprabha Command Area of Northern Karnataka

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ABSTRACT

In the present scenario of irregular monsoon, in-situ conservation of rain water through farm ponds and providing life saving irrigations utilizing ground water to the agriculture crops is the need of hour. In this context, a study was conducted on evaluation of effect of different sources of irrigation water on important *rabi* crops like safflower, sunflower, wheat and chickpea during *rabi* seasons of 2017, 2018 & 2019 at the Irrigation Water Management Research Center (IWMRC), Belavatagi in North Karnataka. Among the different *rabi* crops tried safflower recorded significantly higher chickpea equivalent yield in all three years as well as in pooled analysis (2.38, 2.04, 1.16 and 1.86 t /ha, respectively) followed by sunflower (1.49, 1.32, 1.28 and 1.36 t /ha, respectively). The results also indicated that, among the *rabi* crops, safflower and sunflower are the least affected crops with respect to sources of irrigation water, whereas chickpea and wheat are much affected with the different sources of irrigation water. Thus, oilseeds like safflower and sunflower performed better as compared to chickpea and wheat with different sources of irrigation water with respect to their growth and performance in Malaprabha Command Area of North Karnataka region.

Key words: Different sources of irrigation water, Safflower, Sunflower, Wheat, Chickpea equivalent yield

Malaprabha project is one of the important irrigation projects in North Karnataka with an ultimate irrigation potential of 2.20 lakh ha. In recent years the canal water release is uncertain due to erratic rainfall over the catchments area of the reservoir leading to less water storage in the reservoir (Yaragattikar *et al*, 1997). Under such circumstances different sources of irrigation water has to be explored to provide the life saving irrigation. In this direction this study was conducted on evaluation of effect of different sources of irrigation water on important *rabi* crops like safflower, sunflower, wheat and chickpea during *rabi* seasons of 2017, 2018 & 2019.

MATERIAL AND METHODS

A field experiment was conducted at the Irrigation Water Management Research Centre (IWMRC), Belvatagi of University of Agricultural Sciences, Dharwad during *rabi* seasons of 2017, 2018 & 2019 under irrigated conditions with three different sources of water namely, pond, bore-well and e-harmonised water on four different *rabi* crops like safflower, sunflower, wheat and chickpea. The centre is situated at 15° 61" N latitude and 75° 23" E longitudes at an elevation of 579 m above mean sea level. The soil was clay (24.7% sand, 14.3% silt and 60.8% clay) in texture having pH: 8.3, EC: 0.32 dS/m, organic carbon: