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EVALUATION OF RICE (*ORYZA SATIVA* L.) GENOTYPES IN SALINE SOILS OF KRISHNA DELTA OF ANDHRA PRADESH

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ABSTRACT

A study was conducted to evaluate rice (*Oryza sativa* L.) genotypes during *kharif* (wet season) of 2000,2001 and 2002, under natural saline soils having E.C. in the range of 5 to 8 ds/m and pH 7.8. Seven rice genotypes *viz.*, IET 15420, IET 13428, IET 16887, IET13422, IET16885, IET11353 and IET 16172 were evaluated along with four checks CSR-27 (inland saline), CST 7-1 (coastal saline), CSR - 13 (alkaline) and MTU 2067 and BPT-5204 as local yield checks. Among the varieties screened, IET 15420 and IET11353 recorded significantly superior yields than the better check CST 7-1 and local check MTU 2067 and cultivation of these varieties in saline soils of Andhra Pradesh will help the farmers of the region to cultivate rice crop with higher economic returns.

Salt salinity occupies one third of the irrigated land in more than 40% of the salt affected areas and hence, the development of rice cultivars with greater tolerance to salinity will enhance the use of more area for rice cultivation. (Greenway and Muns, 1980). As the rice crop (*Oryza sativa* L.) is the most staple food, the food production has to be increased substantially and paddy production has to go up from the present 581 to 810 million tones by the year 2025 (Rosegrant *et.al.*,1995). Further, Indian rice production has to be increased from 90 to 140 million tones(Mishra ,2004). The increase in area to meet the demand of rice will have to come from stress inducing marginal lands and problem soils like saline, alkaline, saline alkaline, acidic soils, etc. Salinity has become a problem in most of the irrigated commands due to improper water management, poor drainage practices and violation of cropping pattern etc in the command. The practice of adopting tolerant varieties to saline conditions is useful to increase the productivity of the crop and help the farmers to raise crops in saline soils, as the reclamation is cost productive. Hence, an attempt was made to identify rice genotypes for salinity tolerance in the saline soils of Krishna Delta.

The field experiment was conducted during wet season of 2000, 2001,and 2002 at Agricultural Research Station, Machilipatnam, Krishna district of Andhra Pradesh under natural saline soils having EC range of 5-8 ds/m. The pH of the soils was 7-8. Seven rice genotypes *viz.*, IET-15420, IET-13428, IET-16887, IET-13422, IET-16885, IET-11353 and IET-16172 were screened along with four checks *viz.*, CSR-27 (inland saline), CST-7-1(coastal saline), CSR-13(alkaline), MTU-2067 and MPT-5204 as local yield checks. The experiment was conducted in randomized block design with three replications. Cultivars received all the recommended agronomic and plant protection measures. Observations were recorded on days to 50% flowering and grain yield per plot. The data were analysed as per standard procedure.

The data on flowering and grain yield recorded during 2000, 2001 and 2002 presented in Table 1. The highest mean grain yield was recorded in IET 11353(5314 Kg/ha) followed by IET 15420 (4442 Kg / ha). Among the entries the lowest grain yield was observed in IET 13422 (3504 Kg/ha). In checks the highest grain yield was recorded by coastal saline check CSR7-1(3958 Kg/ha) and alkaline check CSR13 (3829Kg/ha). Inland saline check CSR 27(3736 Kg/ha) and local check MTU2067 (3727 Kg/ha) were also on par with CSR7-1. However, local check BPT 5204(3075 Kg/ha) was found to be

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Table 1. Performance of rice genotypes in saline soils of Krishna Delta of Andhra Pradesh.

Entry	Days to 50 % Flowering				Grain yield (Kg /ha)			
	2000	2001	2002	Mean	2000	2001	2002	Mean
IET-15420	106	108	109	108	4583	4730	4441	4585
IET-13428	105	103	104	104	3666	3517	3811	3664
IET-16887	110	116	118	115	3830	4322	2974	3709
IET-13422	100	105	104	103	3651	3272	3590	3504
IET-16885	111	108	112	110	3714	3837	3997	3849
IET-11353	114	112	115	114	5370	5114	5459	5314
IET-16172	105	100	103	103	2980	4338	4381	3900
CSR-13	109	103	105	106	4054	3394	4039	3829
CSR-27	105	110	107	107	3441	3714	4053	3736
CST-7-1	105	107	111	108	4064	3837	3975	3958
MTU-2067	120	118	121	120	3857	3440	3885	3727
BPT-5204	108	109	110	109	3078	3048	3101	3075
Grand mean					3858	3881	3976	3905
CD($P \leq 0.05$)					Variety	Year	Interaction	
					414	404	638	
CV(%)					10.2			

significantly inferior than CSR7-1. The two cultivars IET11353 and IET 15420, which recorded 34% and 15% higher yields respectively than the better check CSR7-1, will offer scope for releasing higher yields in saline soils of Krishna Delta of Andhra Pradesh.

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