

## Short Communication

Pak. j. sci. ind. res., vol. 32, no. 1, January 1989

EFFECTS OF SUCROSE ON SEED GERMINATION OF IPIL IPIL (*LEUCAENA LEUCOCEPHALA* L) AT DIFFERENT SALINITY LEVELS

Rab Nawaz, Altaf Hussain\* and Muhammad Iqbal Makhdam\*\*

Soil and Water Testing Laboratory, Government Agricultural Station, Old Shujabad Road, Multan

(Received August 9, 1987; revised January 12, 1989)

*Leucaena leucocephala* L. locally known as Ipil Ipil has recently been introduced in Pakistan as fast growing tree with its potential use as forage, fire wood, timber etc. [1]. Since a large area of arable land in Pakistan is saline sodic, one of the approaches to utilizing such soil is for production of biomass which would then be converted to useable energy and in the process also improves the soils [2,3,4]. Of the various plants screened for salt tolerance [5], Ipil Ipil a legume has been tested for salt tolerance at germination, so that its potential for colonizing saline lands could be ascertained.

The seeds of Ipil Ipil were treated with hot water at 80° for 2-3 minutes and soaked for 48 hours in distilled water. Five healthy treated seeds were placed on filter paper and put in petri dishes containing 10 ml solution of different salinity levels, i.e., 0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.2 siemens m<sup>-1</sup> were prepared by dissolving the salts of NaCl, Na<sub>2</sub>SO<sub>4</sub>, CaCl<sub>2</sub>.2H<sub>2</sub>O, MgSO<sub>4</sub>.7H<sub>2</sub>O in the ratio of 5:9 : 5:1 respectively with or without 5 % sucrose. The germination count was recorded after 3 days and lasted upto 10 days. The data on root and shoot length were also recorded. The data were subjected to analysis according to methods described by [6].

It was observed from the results in Table 1 that seed germination percentage differed significantly due to sucrose treatment and various salinization regimes. The sucrose treatment did not favour higher germination than untreated seeds. However, the salt concentrations had detrimental effects on seed germination. The germination percentage decreased progressively with increase in salinity levels. Data further revealed that sucrose treatment and various salinization regimes had statistically significant effect on root and non-significant influence on shoot length. The results are in agreement with those of [3,4,5].

\*Soil Science Department, University of Agriculture, Faisalabad.

\*\*Central Cotton Research Institute, Multan.

Table 1. Effect of different salinity levels and sucrose on seed germination, root length and shoot length of Ipil Ipil *Leucaena Leucocephala* (L)

Salinity levels siemens m <sup>-1</sup>	Treatment		Seed germination	Root length (cm)	Shoot length (cm)
	Sucrose addition				
0	Check		59	2.0	1.0
	Sucrose added		13	6.0	3.0
0.2	Check		40	2.2	1.0
	Sucrose added		13	2.3	3.0
0.4	Check		40	1.5	1.3
	Sucrose added		20	6.0	3.5
0.6	Check		30	1.5	1.0
	Sucrose added		20	7.0	3.5
0.8	Check		17	2.0	1.5
	Sucrose added		20	2.0	1.5
1.0	Check		13	1.0	1.5
	Sucrose added		13	2.0	1.5
1.2	Check		7	1.0	1.0
	Sucrose added		20	2.2	1.0
Stat. Sig. (LSD: P: 0.05)	Salinity		H.Sig: 1.20	H.Sig: 2.16	N.Sig: -
	Sucrose		H.Sig: 0.47	H.Sig: 0.79	N.Sig: -
	Salinity x Sucrose		H.Sig: 1.26	H.Sig: 2.10	N.Sig: -

*Key words:* *Leucaena leucocephala*, Salt tolerance, Seed germination.

## REFERENCES

1. R.H. Qureshi and M. Rashid, Proc., Ist. Nat. Cong. Soil Sci. on Managing Soil Resources (1988), pp.173-184.

2. G.R. Sandhu, Proc. Ind Nat. Cong. Soil Sci. on Soils for Agricultural Development, Faisalabad, Dec. 20-22 (1988).
3. R.H. Qureshi, Biosaline Research in Pakistan, Proc. Nat. Workshop at NARC, Islamabad, Feb., **10** (1985), pp.28-42 (1988).
4. M.L.K. Niazi, M.I. Haq and K.A. Malik, Pakistan, J. Bot., **17**(1) 43 (1985).
5. Anonymous, Ten Years Report of Nuclear Institute for Agriculture and Biology, Faisalabad, Pub. No. NIAB/AR-8 (1982), pp.77-81.
6. K.A. Gomez and A.A. Gomez, *Statistical Procedures for Agricultural Research*, (John Wiley and Sons, New York, U.S.A. 1984), 2nd ed.