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Editorial

The basic and most important unit of the society has been the family from the beginning. For the empowerment and development of the country, first of all it is necessary to pay attention to the moral, social, economic and cultural dimensions of basic institutions like family. Balanced development of the family is very important for the development of the society. Therefore, if we want to have a complete and balanced development of the country, then we need to lay maximum emphasis on the basic institution called family. It is necessary that we should not make any discrimination between son and daughter in the family and we must explain this to our sons and get them involved in their activities. Even today, those who belong to the old belief believe that a woman cannot get any freedom, she cannot go anywhere alone, she cannot roam anywhere alone, but today's youth refuse to accept these values.

Some people also say that the importance of the walls in the house, the same importance is given to the education of the boys in the society. But how is a house made? Who are in the base of the house? The base of the house is our daughters, our girls, that means they are related to the roots. If our root becomes weak in the society, then our house or house cannot be strong at all. There is a need to understand this social context in reality.

The extent of favoritism is reached when we see discrimination in small tasks. Some people think that a girl is someone else's wealth, what job she should do. That's why some parents discriminate between boys and girls and this discrimination is visible somewhere in our behavior, in feeding and dressing. This is sheer injustice. God has given the same brain to boys and girls and today girls are proving it by bringing better results.

Girls stay at their parents' house for only a few days, so it is our duty to pay deep attention to their education, upbringing, only then we can fulfill the concept of a strong society. God has made us the trustee of our children so it is our duty to treat all members equally with full justice because both boys and girls have same power, same soul. So we should give them equal opportunities for development.

The basic objective of women empowerment is the development of women and communication of self-confidence in them. Women empowerment is important for the overall development of the society. Empowerment of women is the most important social phenomenon because they are the creators. If you empower them, make them strong, encourage them, it is better for the society. Women and men are the basis of creation and human society. Both complement each other. These are the wheels of the chariot of life by which the journey of life runs

smoothly. The role of both has been equally important for stability in family and society. The basis of change and development in a society depends on the mutual interaction of men and women, walking step by step and equal mobility of both. A chaotic situation is created in social life when any one side lags behind. The history of mankind is witness to this that where women have been neglected, the development of the society has been stunted. The role of women in creation of creation, education of children, upbringing of family is much more important than that of men, thus her position becomes central in the society. Therefore, without the progress of women, there can be no upliftment of mankind and society. As far as India is concerned "Yatra Naryastu Pujayante Ramante Tatra Devta" means where women are worshipped. The deities reside there. With this ideal any Indian woman can feel pride in comparison to the western woman. The ideal of learning in Saraswati, the ideal of wealth in Lakshmi, the ideal of valor in Durga, the ideal of purity in Ganga, even the ideal of creation in the form of Jagad Janani we find only in India.



Professor Akhilesh Shukla
Chief Editor

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Minaxi Masukhbhai Patel

Salinity tolerance on germination and growth of chickpea (cicer arietinum L.)

• Archana Tiwari
•• Archana Mishra

Abstract- Chickpea is a prominent Indian legume crop and cheap source of protein in human diet. The present study was conducted to evaluate the effect of salt stress on germination of different cultivated genotypes of chickpea. The growth pattern of these genotypes was also compared with four different types' wild species under salt stress conditions. Some physiological changes in leaves were observed under salt stress and germination percentage also reduced. CSG8962 and K-850 genotype showed better results in some treatments in comparison to other genotypes. Wild type species *C. Judacum* perform better at low salt concentration as well as others. The aim of this study is how to utilize the salty area for chickpea production and can contribute to increase the production of chickpea.

Keywords- Chickpea, Germination, NaCl, Salinity

Introduction- Chickpea is a diploid and self pollinated crop. It offers excellent grade protein and also good source of minerals and unsaturated fatty acids. It is the most prominent crop of Mediterranean region and increases the inputs of combined nitrogen in soil (Herridge et al 1995). Chickpea is very sensitive to soil salinity (Lauter and Munns 1986, Mars 1986). This crop plays important role in agriculture system and today ranking third in world among pulses production. Systematic collection and evaluation of wild species for useful traits has revealed presence of diverse gene pool tolerant to the biotic and abiotic stress (Rakesh et al 2013). In worldwide more land is affected by salinity and limit the crop production. About 80 million hec. land worldwide is prone to stress (Flower et al 2010). Salinity is the major environmental stress which declines growth and yield of crop (Munnis and Testa 2008, Jha et al 2014). Due to these reasons yield is severely affected due to these reasons low land farmers face many problems. The aim of this study is to overcome the stress by using these cultivars and may help breeders to increase the productivity of chickpea.

Material and Method- To perform these experiments different chickpea genotypes i.e C-235, K-850, BG-256, Bio 201, CSG-8962, CSG-88101 and four annual wild species i.e *Cicer cuneatum*, *Cicer raticulatum*, *Cicer judacum* and *C.echinospermum* were taken for screening against salt

treatment. 0 % NaCl (control), 0.25 % NaCl, 0.5%NaCl, 0.5% NaCl: CaCl₂ (1:1), 0.5% NaCl: CaCl₂ : MgCl₂ (2:1:2), 0.5% NaCl : CaCl₂ : MgCl₂ (5:3:1), 1% NaCl and 1% NaCl, CaCl₂ (1:1), treatment concentrations were taken as T₁, T₂, T₃, T₄, T₅, T₆, T₇ and T₈ respectively. For growth experiments, seeds of wild species were grown in pots containing soil. One month old seedlings were treated with above mentioned solution mixture. For germination, genotypes were surface sterilized by sodium hypochlorite solution followed by washing with distilled water (Sauer and Burroughs 1986). 5 seeds were taken for experiments and transfer on petriplate containing 2-3 layer of Whatman's paper. Petridishes and Whatman's paper sterilize in hot air oven (Muhammad N. Hussain 2010) on these petriplates 15 ml solution of each treatment mixture were poured to analyse the growth. The experiments were taken three replications under room temperature.

Result and discussion- In order to evaluate and screening of different wild species of chickpea under various salt stress mixtures, the effects of salt stress was observe as yellowing and browning on lower part after 15 days of salinization. *C. judiacum* perform better against 5:3:1 of NaCl: CaCl₂: MgCl₂ (T₆) and 30% on 1:1 of NaCl: CaCl₂. Similarly results were observed in cultivated genotype of chickpea CSG 8810 and other genotypes. In wild species *C. Judaicum* and *C. Cuneatum* were showed best result for survived under T₆ and T₈ treatment. All species are survive under T₂, T₃, T₄, T₅ except yellowing start after two interval of higher salt solution.

In this research the effect of salt stress on germination of certain chickpea cultivars was investigates. The effect of salt stress on seed germination parameters were shown positive & negative results. The plumule (P) and radicle (R) response better growth in seed germination after 10 and 15 days of interval. Length of P/R is comparatively reduce as higher concentration of salt treatment, T₃, T₅ and T₇ showed less growth of radicle. All genotypes of chickpea showed similar growth reduction. Length of radicle was observed in CSG8962 (3.156 and 3..4), BG.256 (2.0 & 2.25) is T₈ treatment as compare to control. Similarly. Plumule length also increases in same treatment. On the other hand T₇ showed less growth. In conclusion that CSG8962, K850, BG256 given resist to initial level of salt as compare to higher dose. But when mixture i.e. MgCl and CaCl₂ is added to NaCl response positive. Dev *et al.* 2020 and Flower *et al.* 2014 also found similar result in chickpea.

It was observed that on increasing the salt concentration germination percentage decreases. 0.5% NaCl and 1% NaCl concentration was the most effective concentration which severely decline germination comparison to controlled condition. But when a mixture of 1:1 NaCl: CaCl₂ (T₅) was given then germination increased. From these results it is concluded that the toxicity of NaCl may decrease by adding CaCl₂ excess Na⁺ and Cl ions from the solution create ionic stress and produce toxicity and reduce germination. According to (Judin *et al.* 2017) salinity is also associated with reduce photosynthetic activity. The result indicated that significant difference was observed in germination percentage, germination

rate, radical **length and plumule length parameters** under salinity condition. These results showed that toxicity of NaCl may decreased by adding CaCl_2 and MgCl_2 .

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