Impact of Abiotic stresses on Morphological, Genetical and Physiological traits on different genotypes of Brinjal (Solanum melongena L.).

Brinjal (Solanum melongena L.) also known as eggplant, aubergine, or Guinea squash, is of considerable economic importance in Asia, Africa and other subtropics regions of the world. Brinjal is a good source of vitamins and minerals especially iron. Its area and production in Punjab is 3.38 thousand hectare and 71.76 thousand tonnes, respectively, whereas, productivity is 21.23 MT/ha. Certain changes have been noted in global climate day by day. Global climate change, rated as the most serious threat to environment and agriculture. Due to this, changes in climate factors like temperature, solar radiation, rainfall, flooding or drought and soil factors like salinity have potential to influence the vegetable crop production.

Due to use of excessive water from deeper layers of soil in present day agriculture, drought condition will become prominent in Punjab in next few years because water level goes in very deeper layers. Excessive rainfall at wrong time creates the conditions of flooding or submerged soil conditions which are not suitable for brinjal. Excessive use of inorganic fertilizers to improve the present brinjal growth will create the conditions of salt stress in future due to absorption of soluble salts in soils. Due to climate change, temperature stress arises. Under Punjab condition temperature stress, salt stress, and water stress is noticed in future years which will affect the binjal growth and productivity. Therefore there is huge need to identify or develop new brinjal genotypes resistant to these abiotic stresses. Water stress is defined as absence of rainfall or irrigation for a period of time sufficient to deplete soil moisture and injure plants. Excess of water or flooding also alter the growth. Salinity is a soil condition characterized by a high concentration of soluble salts. So the present investigation has been planned to study the effect of different abiotic stresses on different brinjal genotypes. Different abiotic stresses affect its growth yield, physiological and genetical aspects of brinjal. For this study, trials are conducted at two locations, Bathinda and Ludhiana respectively. So that effect of three different abiotic stresses (Temperature stress, water stress and salt stress) at two different locations on brinjal genotypes will be studied. Total 30 brinjal genotypes will be studied with following objective:

1. To identify the suitable brinjal genotype for grown in different abiotic stress conditions.
2. To study the effect of different abiotic stresses on morphological and physiological aspects of brinjal.
3. To study the effect of different abiotic stresses on genetics of brinjal genotypes.
4. To study the effect of different abiotic stresses on quality traits of brinjal.