Extensive affects the solubility of various proteins

Design

Extensive examinationsof essential part of AP2/ERF genes in growth of plant, improvement and stressresponse7, 12-14.

For most cases, the AP2subfamily, the main elementsinclude organic design and organic progression, for example, the determinationof epidermal leaf cells, spikelet meristem and the design of plant organs15as well as grain yield16, 17, while the RAV subfamily showedimportant functions in transduction of plant hormone, such as ethylene18, brassinosteroids19, as well as responses to biological and abioticstress20, 21. In addition, DREB, along with different individual inERF family, is mainly affected by the response to biological and abiotic stresses, for example water scarcity22, low temperature23, 24andhigh salt stress25. Proline free accumulation is a common reaction tostress in high plants26. There are several reports of positivecorrelations between proline accumulation and compatibility plants with stressconditions under drought stress and salinity27. Proline affects thesolubility of various proteins and enzymes and prevents them from changingtheir nature. In plants, for example, beans and soybeans, with a decrease inwater potential, have been shown a significant increase in proline content28. Sunflower (Helianthusannuus L.

) is one of the important components of oil seed crop and it is differentfrom the metabolism, physiological, and methods of regulating the etymology ofreproductive stress metabolism. This function is of unique enthusiasm foradjusting it to high temperatures, limited access to water, high salinity andpredominant metal scrap in the soil29. Typically, the DREB subfamilyas a candidate is possible to increase the environmental tolerance of theproduct. The DREB subfamily shows distinct reaction patterns according to

theecological strategies, including low temperature (AtCBF1)23, heat (ZmDREB2A, AtDREB1A)24, 30, osmosis (CkDREB)31, drought (OsDREB1)22, 32 and lack of water and high stress (CaDREBLP1)25. DREB provide a large number of hydration/cold genes in collaboration with theDRE/CRT components (A/GCCGAC) available in COR/RD promoters33.

Meanwhile, a few DREB subfamily genes are reportedly positive and negative intermediary ofABA and sugar reactions, essentially during germination and early plantbreeding stages34. Over-expressionof the DREB gene within the framework of plants increases salt tolerance as apositive control35, 36. Expression of OsDREB2A and OsDREB1Fenhancement increases drought stress and salinity stress in rice and Arabidopsis36.

In rice, OsDREB1A and OsDREB1F were created by cold stress. OsDREB1Fwas also used for drought, salt, and ABA treatment. Over-expression of OsDREB1Aand OsDREB1F resulted in increased resistance to dry season and severesalt susceptibility in Arabidopsis35-37. In Arabidopsis, a CBF2mutation was distinguished by using a reverse genetic approach, in which theCBF2/DREB1C gene was abnormal. CBF2 mutation increased resistance to droughtstress and salt.

The expression analysis showed that CBF2/DREB1C wasinconsistent with the CBF1/DREB1B and CBF3/DREB1A instructions38. Surprisingly, the DREB1/2 gene initiated under drought stress and salt, suggesting