

## **Scientist at ICGEB found that biosynthesis trehalose sugar improves the drought, saline and sodic conditions of marker-free transgenic rice**

Scientist at DBT's International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi has developed a "sweet solution" to the salinity and sodicity, and drought conditions affecting rice produce by providing a novel approach for development of marker-free transgenic lines in a popular rice variety. The DBT's ICGEB has successfully generated new rice type that accumulates a sugar (trehalose) in high amounts through this approach. They have carried out in an internationally widely cultivated mega variety of rice, IR64, which is otherwise sensitive to abiotic stresses.



Scientists at DBT's ICGEB has demonstrated that enhanced levels of trehalose in the improved IR64 plants could help these plants to grow under various stress conditions such as stresses salinity, sodicity, and drought with minimum effect on their grain yield. It is also seen that these plants show the similar nutritional levels as the wild-type, ensuring nutritional equivalence in the transgenic grains. This has promising avenues for marginal land cultivation in future.

Rice is one of the major food crops feeding more than 50% of the world population. However, unfavourable environmental conditions (abiotic stresses) such as excess of salt in the soil (salinity and sodicity) and shortage of water (drought) negatively impacts agricultural productivity of rice and hence posing a challenge for global food security. Thus, development of newer varieties which can withstand various environmental stresses without having much affected on yield (total productivity) is greatly required.

Source:

[https://watermark.silverchair.com/erz462.pdf?token=AQECAHi208BE49Ooan9khhW\\_Ercy7Dm3ZL\\_9CF3qfKAc485ysgAAAmwggJoBgkqhkiG9w0BBwagggJZMIICVQIBADCCA4GCSqGSib3DQEHATAeBgJghkgBZQMEAS4wEQQMuc93vtKu8jpJh8\\_zAgEQgllCH-c7ib2Hydt6ovqvFhJ9-8FzlyBw8FAS27b1GBQUnto5CsRDb9lk97KVXxPoylziF7w6uKL-hiEmpsoUg8pXcB75Lhl\\_v1opufxpODX0fM8b-8nS7ZkXW2dfkj6HH5\\_sd6OVtkj9B56akHiA42UAAQ\\_YdgXwPlkyov8d1VwKmxsn344HOJadwNUOoy9kwqzcXNppWBXnPEKcrhfXxaHFTpGek87Tao8F1gQiqex1TseYus3Fai4WrzelzdowHos\\_uGzk3\\_eUcitsA2K8JAL-H0dckzaaqvAIEx3TR\\_bkEOUugfyz7iv-4PLW8cWvDW9Z6O4-K\\_ILgHhGnyDAQo2OdN4Oxg6U3yu3i3RW5pkuTYkS804njNXTwLOK\\_kgOKsMfM05hhHrEJrygEQ8DzfrApEBeVwUIEPvntnKoSdCnXGZnsMzmqF7rVL9GbvI-8JS3MG68KMa2IlnV8eWzane8AvCgfC8UFE4CoVrsj2Gn-JBqinaH\\_-TqbTs4ecwfbmEvaxr3i10cw-NXuyYdt1Sptx5iBmYeBt8qch8G6mphyQPogGjPDKjoY\\_sUjQU95gTx0nbvWyoRww1tCHYIA1rozKKRNjJrcroTUc5FKBjKdluMRdekLn4p5KpPHkHhabSxqcgOYoFH9iIASJ4IaqimTN2ZG7heHANgEkx4Sz7Df4hsij93bvzNoqAU\\_ih4yf8S3WcW\\_Ur33cC9fw](https://watermark.silverchair.com/erz462.pdf?token=AQECAHi208BE49Ooan9khhW_Ercy7Dm3ZL_9CF3qfKAc485ysgAAAmwggJoBgkqhkiG9w0BBwagggJZMIICVQIBADCCA4GCSqGSib3DQEHATAeBgJghkgBZQMEAS4wEQQMuc93vtKu8jpJh8_zAgEQgllCH-c7ib2Hydt6ovqvFhJ9-8FzlyBw8FAS27b1GBQUnto5CsRDb9lk97KVXxPoylziF7w6uKL-hiEmpsoUg8pXcB75Lhl_v1opufxpODX0fM8b-8nS7ZkXW2dfkj6HH5_sd6OVtkj9B56akHiA42UAAQ_YdgXwPlkyov8d1VwKmxsn344HOJadwNUOoy9kwqzcXNppWBXnPEKcrhfXxaHFTpGek87Tao8F1gQiqex1TseYus3Fai4WrzelzdowHos_uGzk3_eUcitsA2K8JAL-H0dckzaaqvAIEx3TR_bkEOUugfyz7iv-4PLW8cWvDW9Z6O4-K_ILgHhGnyDAQo2OdN4Oxg6U3yu3i3RW5pkuTYkS804njNXTwLOK_kgOKsMfM05hhHrEJrygEQ8DzfrApEBeVwUIEPvntnKoSdCnXGZnsMzmqF7rVL9GbvI-8JS3MG68KMa2IlnV8eWzane8AvCgfC8UFE4CoVrsj2Gn-JBqinaH_-TqbTs4ecwfbmEvaxr3i10cw-NXuyYdt1Sptx5iBmYeBt8qch8G6mphyQPogGjPDKjoY_sUjQU95gTx0nbvWyoRww1tCHYIA1rozKKRNjJrcroTUc5FKBjKdluMRdekLn4p5KpPHkHhabSxqcgOYoFH9iIASJ4IaqimTN2ZG7heHANgEkx4Sz7Df4hsij93bvzNoqAU_ih4yf8S3WcW_Ur33cC9fw)