Kuwait views on “Digital sequence information”

The arid region of Kuwait comprises a valuable resource of vegetative flora containing a scientifically important gene pool of drought and salt tolerance. However, due to several anthropogenic activities, the native flora of Kuwait has suffered severe degradation and significant alteration in the vegetative communities has been observed from 1974 to 2001. In addition, the Gulf War in 1991 caused great devastation of the natural flora due to the enormous levels of oil pollution. Many of them are facing dangers of extinction. Further threats of global warming will intensify the problem. Therefore, there is an urgent need to conserve the natural plant genetic resources of Kuwait. The nation has developed a national biodiversity strategy after the signing of the United Nation’s Convention on Biological Diversity (CBD). The main aim of this convention is to counteract species extinction and biodiversity loss. This refers not only to propagation of the dying species, but also the science and management activities, which ensure the survival of the maximum diversity of species and the maintenance of genetic variation within species. In this context, the applications of genetic sequence data make important contribution towards sustainable management of plant genetic resources in Kuwait.

Terminology: Regarding the terminology Kuwait feels that the word genetic is more appropriate as the information pertains to genetic sequences of biological entities. Therefore we would like to name it as Genetic sequence data (GSD).

Actors involved: In Kuwait the main actors involved in DSI/GSD would be researchers and scientists in Kuwait Institute for Scientific Research (KISR) and Public Authority for Agriculture and Fisheries Resource (PAAFR). KISR is actively involved in the genetic characterization of its native plants through molecular techniques and next generation sequencing. PAAFR has finalized the blueprint of a project to launch DNA research centre for the development of agricultural and fish resources. The knowledge generated will be shared with the farmers and breeders through workshops and training programs. The information on the genetic diversity within and between populations is important for defining strategies for conservation, desert rehabilitation, promote research in biodiversity and identify plant diseases.

Types and extent of uses of DSI on PGRFA: Conservation and sustainable use, Breeding and exchange, identification and characterization of plant genetic resources, crop improvement (genome editing), QTL mapping, population genetics etc.

Relevance of DSI on PGRFA for food security and nutrition: The sharing of genetic sequences will certainly contribute towards the food security. Genetic sequences are being used for crop improvement for enhanced nutritional value, developing drought and pest-resistant crops and identification of marker genes for selective breeding.