

**GOVERNMENT OF INDIA  
SCIENCE AND TECHNOLOGY  
LOK SABHA**

UNSTARRED QUESTION NO:3601  
ANSWERED ON:18.03.2015  
GENOME SCIENCE  
Lekhi Smt. Meenakashi

**Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:**

- (a) whether the Government has made progress in using genome science and technology to sequence domestically grown fruits and vegetables;
- (b) if so, the manner in which the outcomes and the results can be used to augment production of these items in the country and if not, the reasons therefor; and
- (c) the details of the advancements made in genome sciences in comparison to our international counterparts?

**Answer**

MINISTER OF STATE FOR SCIENCE & TECHNOLOGY AND EARTH SCIENCES (Y.S. CHOWDARY)

- (a) Yes, Madam. A number of Government institutions are involved in the whole genome sequencing of a number of crops including vegetables and fruits. Among the vegetable crops, the sequence of tomato and potato have been completed as a part of international consortium. Among fruits, mango genome is being sequenced.
- (b) The results of genome science are being used for developing varieties/hybrids in a number of vegetable crops for higher productivity through marker assisted selection and transgenic technology. The DBT is supporting research programs for using genome information for improving crop yield. It initiated a major program on inducing genome variation by Targeting Induced Local Lesions in Genomes (TILLING) which is being supported as Solanaceae Genome Initiative (SOL) phase II program in next five years. The ultimate objective of this program is to enhance shelf life in tomato and also improve its nutritional quality such as carotenoids and folate. DBT is also funding a major research program on Tomato metabolomics where information derived from genome sequence data would be used to enhance vitamins such as carotenoids and folate levels in tomato fruits.
- (c) The level of advancement made in this area is quite close to the international standard. Some of the Indian institutions are planning to take up even some important fruit trees for sequencing.