

Research:

- It is conducting important research for nutraceutical quality of cereals, pulses, oilseeds, vegetables, fruits and medicinal plants.
- Biochemical and molecular characterization of cereals, pulses, oil seeds, vegetables and fruits in response to biotic and abiotic stress.
- Effect of various chemicals on nutraceutical quality trait on different crop plants.
- Transcriptome analysis of biotic and abiotic stress conditions in different crop plants.
- Validation of disease resistance genes and confirmation to related biochemical pathways.
- Characterization of soybean (*Glycinemax* L.) genotypes through biochemical and SSR markers for nutritional quality.
- Effect of limited irrigation on quality of durum wheat (*Triticum durum* spp).
- Low temperature of potato storage greatly influenced vitamin C content as well as the phenolic content.
- SSR markers provide useful information to discriminate potato varieties and offer valuable insights to explore the genetic diversity linked to carbohydrate metabolism in potato.
- “Genetic transformation of Nucleotide Binding Site-Leucine Rich Repeat (NBS-LRR) of Mi gene for developing resistance against *Meloidogyne incognita* in tomato (*Solanum lycopersicum* L.).”
- “Differential gene expression study during root knot Nematode (*meloidogyne incognita*) infection in Tomato (*solanum lycopersicum* l.)”
- Response to silicic acid against root knot nematode and yvmv disease in okra (*abelmoschus esculentus* l. moench)”.
- Gene expression study for Phytate during wheat seed development
- “Nutraceutical and molecular characterization of pumpkin (*cucurbitamoschata* duch. ex. poir)”
- Seed kernel biochemical characterization and SSR based diversity analysis of different mango (*mangiteraindica*L.) varieties.
- Influence of drought on gum quality of galactomannan in clusterbean (*cyamopsis tetra geno* tube).
- Differential gene expression in response of melatonin in bottle gourd (*lagenaria siceraria* (mol.) standl.)”.
- Sprouting of chickpea and mung bean enhance the nutraceutical value which may useful to enhance the immunity.
- Pre-soaking melatonin treatment ameliorating effect against abiotic stress in vegetable crops.
- Evaluation of antioxidants and differential gene expression in response of silicon in Rice against drought.
- Biochemical and molecular characterization of finger millet, cumin and potato.
- Morpho-physiological and nutraceutical characterization of Jivanti (*LeptadeniaReticulata* (Retz.) at different harvest time.
- Mapping QTLs for TLCV (Tomato leaf curl virus) resistance in tomato.
- Comparative study of melatonin and nematicide against root knot nematode in tomato.
- Influence of biostimulants on nutraceutical potential of Brinjal (*Solanum Melongena* L.)
- Identification of molecular markers linked to chilli leaf curl virus resistant in chilli (*Capscicumannum* L.)

- Effect of ascorbic acid on physiological and biochemical attributes of tomato (*Solanum lycopersicum* L.) under saline condition
- Basil
- Impact of Jasmonic acid on leaf phytochemicals at various growth & development stages
- Influence of proline under saline conditions in rice cultivars at seedling stages

Externally Funded Project

| Sr. No | Project Title | Total Fund | Funding Agency | PI |
|--------|--|-----------------|--|------------------------|
| 1 | Biochemical and Molecular Characterization of <i>T. durum</i> cultivars for its product processing quality | Rs. 19,72,788/- | Gujarat State Biotechnology Mission, Gandhinagar | Dr. J.G. Talati |
| 2 | Nutraceutical importance and molecular characterization of okra | Rs. 12,51,420/- | Gujarat State Biotechnology Mission, Gandhinagar | Dr. J.J. Dhruv |

Ongoing Research Projects in the Department:

| Sr. No. | Title of the Project | Name of PI | Name of Co-PI | Category of project |
|---------|--|-------------------|---------------|---------------------|
| 1. | Government of Gujarat scheme: Establishment of a Central Instrument Centre with heavy duty generator set | Dr. J.J. Dhruv | - | Plan |
| 2. | Genetic enhancement and production technologies of cluster bean for (guar) yield and quality | Dr. M. G. Machhar | - | Plan |