

GMO Testing

Why Cotecna

- > Swiss group founded in 1974
- > Global network of over 3,000 employees in more than 100 offices & certified laboratories across approx. 50 countries
- > Use of E-dox™, an innovative solution to issue digital certificates
- > Efficient and responsive services, customised to clients' needs

Accreditations, Certifications & Memberships

- > ISO 9001:2015
- > ISO 17020:2012 ANAB – for the service of Verification of conformity
- > ISO 17025:2005 – for individual laboratories
- > IFIA – International Federation of Inspection Agencies
- > GAFTA
- > FOSFA

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Value Proposition

Cotecna is a leading provider of testing, inspection and certification services. We offer solutions to facilitate trade and make supply chains safer and more efficient for our clients.

In its accredited laboratory, Cotecna India provides GMO* testing for agricultural commodities in India.

These types of tests are required by producers/exporters/importers in order to meet specified regulatory or commercial requirements, and to ensure internal quality control.

*A GMO is any organism in which the genes or other genetic material have been modified by using in vitro techniques (recombinant DNA). A plant, such as corn or soybean, is considered genetically modified when genetic material from outside of that organism is inserted into its DNA sequence.

GMO Testing Using PCR Technology

To detect GMOs, we use a DNA analysis method called "PCR" (Polymerase Chain Reaction). This method is commonly used in the industry and surveillance, because it has many advantages:

- > It can detect all commercialized GMOs;
- > It is effective with a broad array of sample types (seed, grain, processed ingredients, finished products);
- > It is appropriate for quantitative (Real-time PCR) and qualitative testing (Q-PCR);
- > It can provide definitive quantification of GMOs since analysis is performed directly at the DNA level;
- > It has a high sensitivity and specificity.

Products

Samples of GMO that are commercially available: corn (field and sweet), soybeans, cotton, canola, sugar beets, papaya, and squash.

Commodities

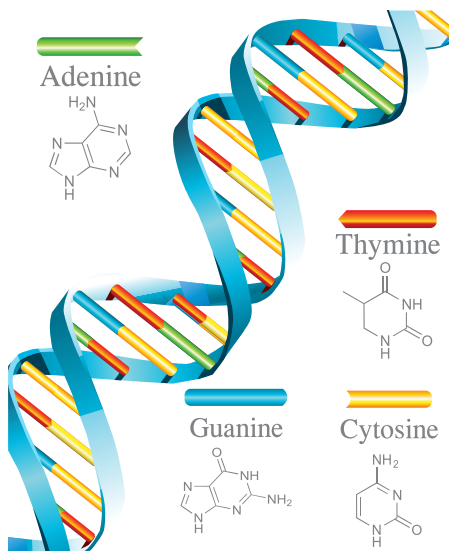
- > Spices
- > Cereals and pulses
- > Millets
- > Processed food
- > Tea
- > Vegetables
- > Fruits
- > Oil seeds
- > Dry fruits
- > Pet food
- > Animal feeds

Most Advanced Equipment

Including:

- > Genetic analyzer
- > End point PCR
- > Real time PCR

DNA Structure



PCR Method: GMO Testing Parameters

Generic Screening

The high-performing 35S promoter is a common feature of several GMOs.

The stop signal for gene transcription is often the same: i.e. NOS terminator.

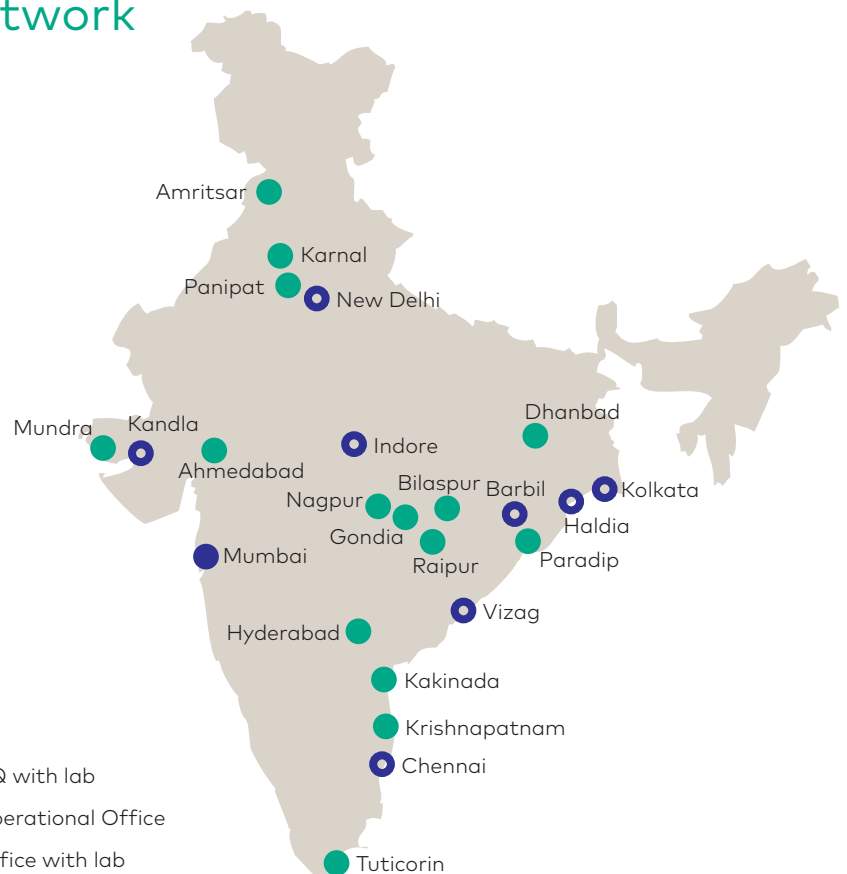
There are numerous GMO specific markers available, including the most common ones: 35S, NOS, NPTII, PAT, FMV.

Event Testing

It involves the identification of a defined portion of the relevant genetic element (transgene) inserted in order to confer a new trait on the plant, for example:

- > **Corn**
Bt11, GA21, MON810, MON863, MON89034, NK603, MIR604, 59122, 3272
- > **Soya**
DP-305423, DP-356043, DAS-68416-4, DAS 44406-6, DAS 81419-2, MON87701, MON89788
- > **Cotton**
3006-210-23, MON15985. MON531, MON88913, DAS-81910, 281-24-236.

Network



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