



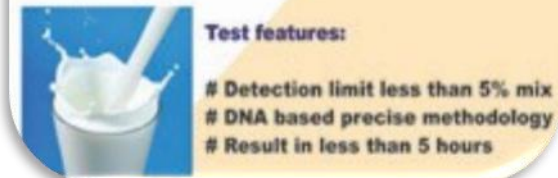
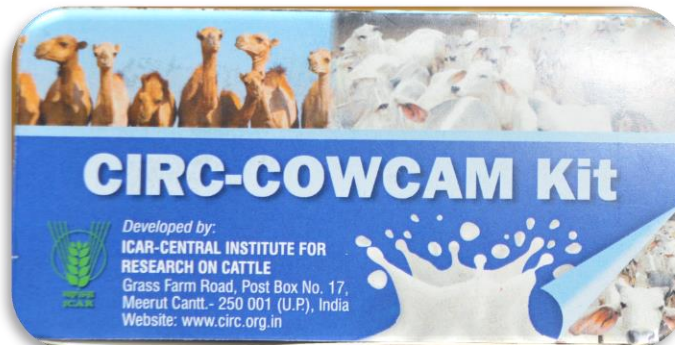
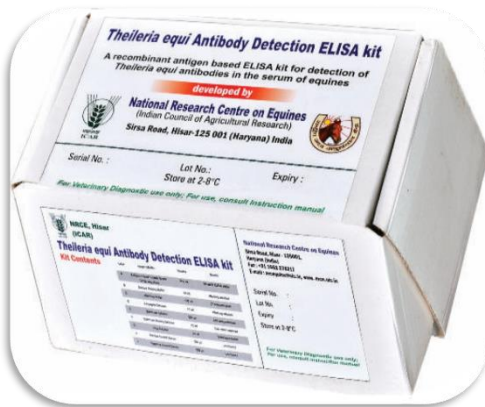
Diagnostic and Testing Kits



Market ready & regulatory compliant
technology ready reckoner...



DNA based method for Detection of
**Cattle, Buffalo, Sheep,
Goat and Camel MILK**



A new rapid test for detection of detergent in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- Gives a clear differentiation between pure and adulterated milk samples. Detects any brand of commercial detergents adulterated into the milk sample.
- The test can be used for the quantitative estimation of anionic detergent in milk.
- test results are made available within 100 seconds and it can detect up to the presence of 20 mg commercial anionic detergent (LABOLENE) in 100 ml of pure milk.
- No equipment required. No false positive or false negative result.

Rapid test for detection of Detergent in milk

- ▲ Detergents are added to milk to emulsify **non-milk fat**.
- ▲ They are considered as **essential component** for synthetic milk preparation.
- ▲ Detection of detergent in milk can establish the presence of **synthetic milk** in the milk supply.
- ▲ **Anionic detergents** are most widely used.
- ▲ Rapid test has been developed for detection of **Anionic detergent** in milk at NDRI.

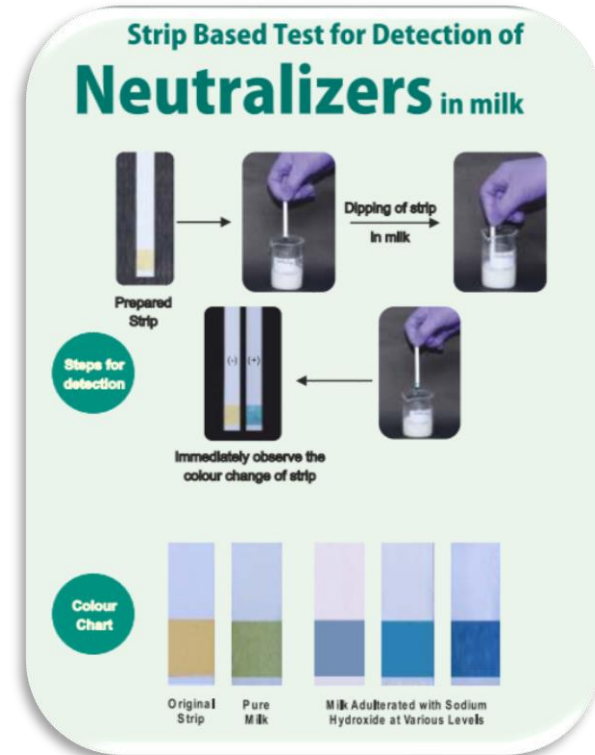
- 1 Take 400 μ l of Dye
- 2 Add 800 μ l of Solvent
- 3 Close the cap & Mix by shaking
- 4 Add 400 μ l of milk sample to be tested
- 5 Invert tubes 30 times
- 6 Observe color change in lower layer

<https://tinyurl.com/93rwxfc>

A new strip-based test for detection of neutralizers in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- A rapid paper-based strip test for the detection of neutralizers in milk. The prepared strip is yellow in color.
- Normal processing of milk such as pasteurization, boiling etc does not affect the efficacy of the strip.
- The shelf life of the strip is more than 6 months at room temperature.
- The test can be performed even by non-technical person.



<https://tinyurl.com/xza8crmy>

A new strip-based test for detection of urea in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- Strip based test for detection of 'urea' in the milk
- A rapid paper-based strip test for the detection of neutralizers in milk. The prepared strip is yellow in color.
- Normal processing of milk such as pasteurization, boiling etc does not affect the efficacy of the strip.
- The shelf life of the strip is more than 6 months at room temperature.
- The test can be performed even by non-technical person.

<https://tinyurl.com/2wh6b9fz>

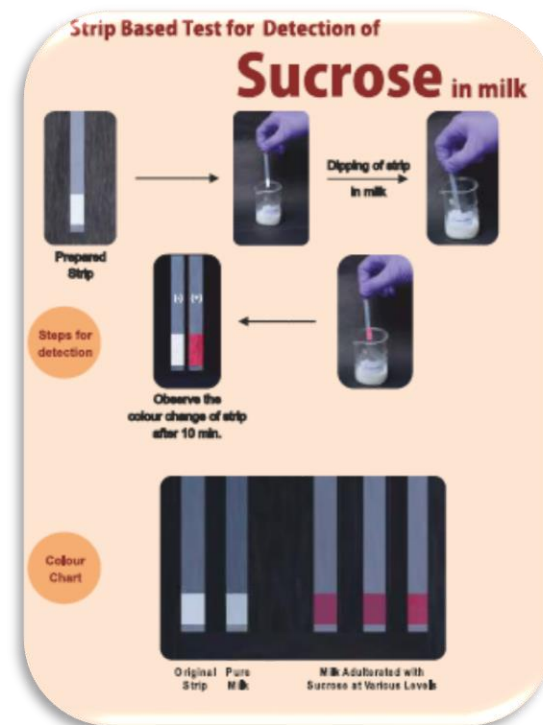


A strip-based test for detection of sucrose in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

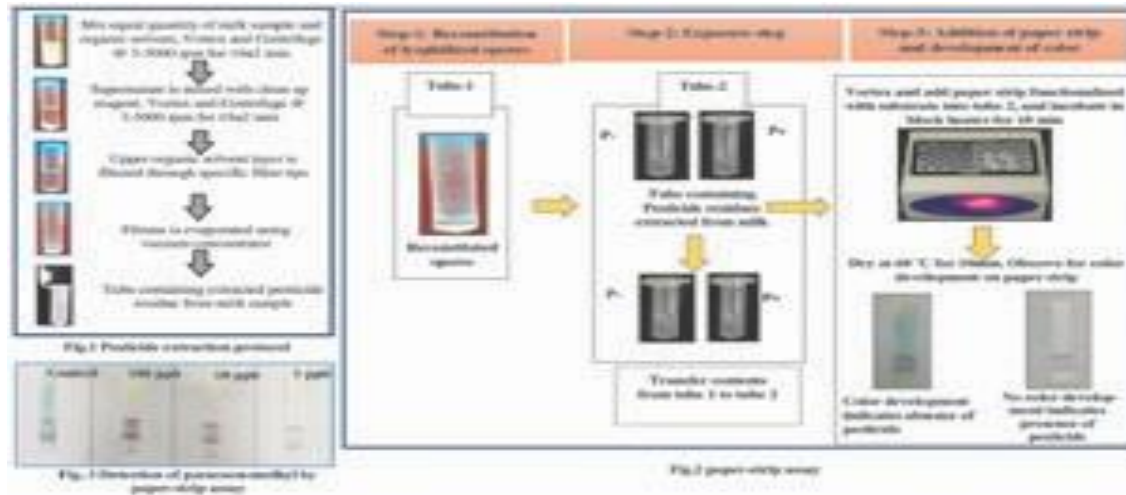
- Sucrose is added in the milk to fraudulently increase its solids-not-fat content. A rapid strip-based test for detection of sucrose in milk has been developed.
- The developed strip test can detect even 0.1% sucrose in milk.
- The test involves dipping the strip in milk and observing the change in colour after 5 min.

<https://tinyurl.com/4c37yf4k>



Paper Strip Assay for Rapid Detection of Pesticide Residues

Institute: ICAR-National Dairy Research Institute (NDRI)

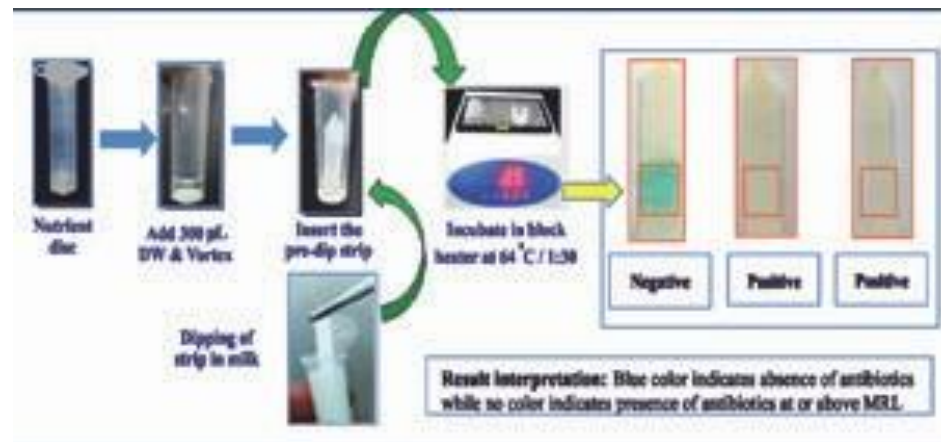


- For routine monitoring of pesticides under field application, three stage assay on paper strip has been developed based on “spore germination and enzyme inhibition principle”.
- Simple and cost-effective technology for field application especially at reception dock in dairy/food industries.

<https://tinyurl.com/yh65pzey>

Paper strip-based assay for antibiotic detection in milk

Institute: ICAR-National Dairy Research Institute (NDRI)



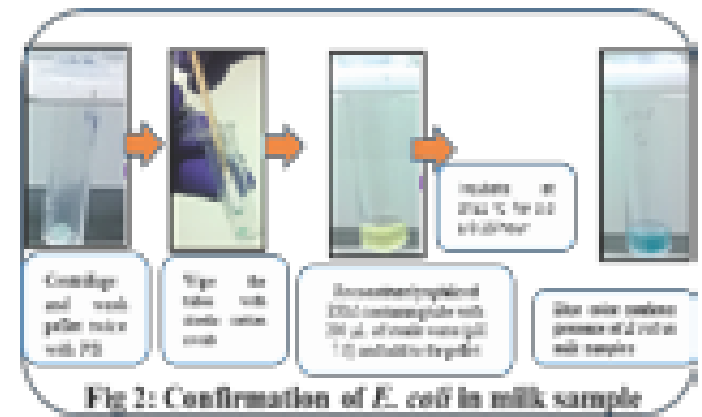
- Strip based testing kit for antibiotics adulterated into milk samples
- Semi-quantitative detection of β -Lactams, aminoglycosides, tetracycline, macrolides, chloramphenicol and sulfa drugs at Codex / EU limits.
- Assay is cost effective, rapid, robust, reproducible, selective & sensitive to larger group of antibiotic residues.

<https://tinyurl.com/jra8cv3u>

Rapid test for detection of coliforms in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- Developed by involving targeting enzyme substrate reaction for specific marker enzyme (s) to release free chromogen which can be visually detected by a color change within 12.15 ± 0.30 h of incubation employing CSM as a selective medium in lyophilized form.
- confirm <1.0 log CFU/ml within 12.15 ± 0.30 h of incubation against 2-3 days protocol following conventional method.
- Selective inhibition of non-coliforms likes Salmonella, Shigella, Yersinia, and Proteus.



<https://tinyurl.com/2nd5bkss>

Strip based test for detection of glucose in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- It can detect presence of 0.02% level of glucose in milk. The developed detection strip can also be used to detect the presence of glucose in various milk products (Khoa, Dahi etc.).
- The colour change in glucose detection strip also occurs in presence of glucose or H_2O_2 .
- The shelf-life is more than 3 months at refrigeration temperature.

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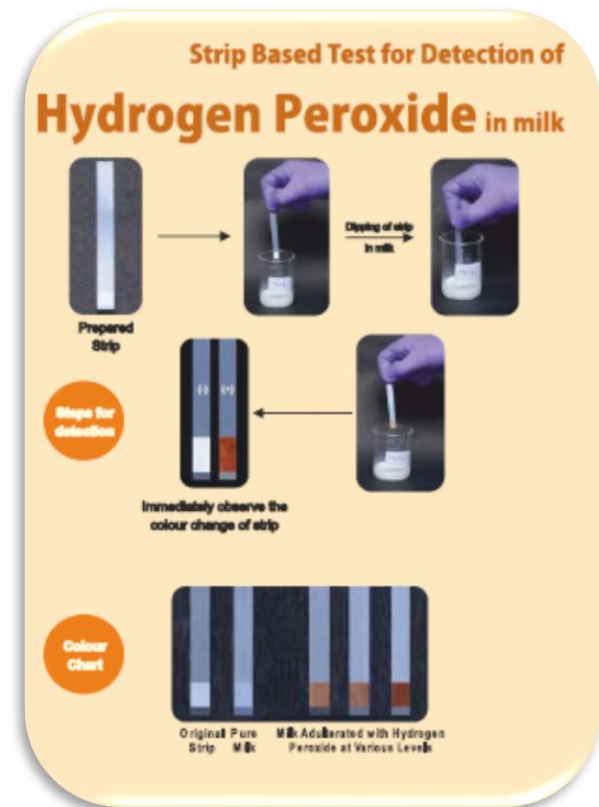


Strip Based Test for Detection of Hydrogen Peroxide in Milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- Involves putting a drop of milk on the strip followed by visualization of change in colour of the strip.
- The colour change to pink after about 1 minute in case of milk adulterated with hydrogen peroxide.
- The test can detect presence of 0.001% level of hydrogen peroxide in milk.

<https://tinyurl.com/hys55f6a>

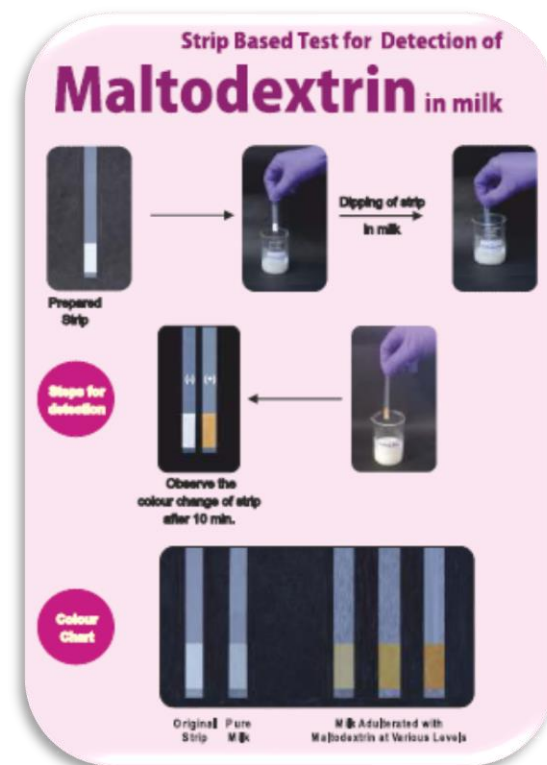


Strip Based Test for Detection of Maltodextrin in Milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- Test involves putting a drop of milk on the strip followed by visualization of change in colour of the strip.
- The colour change to yellow after about 3 minutes in case of milk is adulterated with maltodextrin.
- The test can detect presence of 0.15% level of maltodextrin in milk.

<https://tinyurl.com/4xs9vrzj>

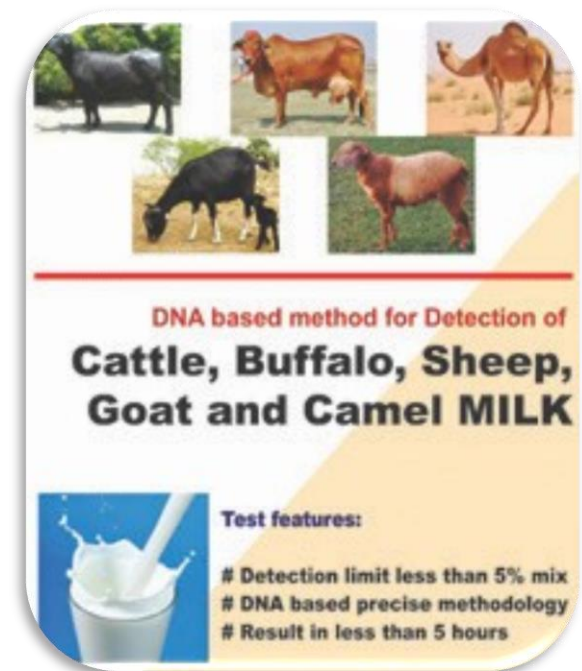


DNA Based Method for Differentiation of Cow, Buffalo, Sheep, Goat and Camel Milkstage enzyme assay for detection of enterococci in milk and milk products

Institute: ICAR-National Dairy Research Institute (NDRI)

- The invention relates to a process for purifying and isolating milk somatic cells from raw and packed milk.
- Subsequently nucleic acids are isolated from the milk somatic cells.
- The basis of the invention is a method of isolation and disruption of the milk somatic cells, protecting the nucleic acids and finally purifying them.

<https://tinyurl.com/5rxxzvsv>



Rapid test for detection of E. coli in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- “Two-stage test” has been developed for detection of E. coli based on the principle of targeting enzyme substrate reaction for specific marker enzyme (s) to release free chromogen in stage-1 which can be visually detected by a color change after 12 ± 1.0 h of incubation in E. coli.
- In stage-2 using specific enzyme substrate mixtures, confirmation of E. coli can be achieved within 3.00 ± 0.15 h.
- The developed enzyme assay for E. coli can confirm <1.0 log CFU/ml within 12.0 ± 1.0 h for presumptive detection and 3.0 ± 0.15 h for its confirmatory detection as against 4 days protocol followed in the conventional method.

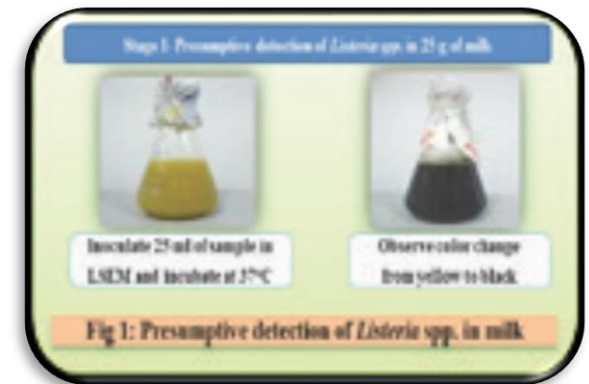
<https://tinyurl.com/25em4de9>



Two stage enzyme-based assay for detection of *L. Monocytogenes* in milk

Institute: ICAR-National Dairy Research Institute (NDRI)

- Based on the principle of targeting “enzyme substrate reaction for specific marker enzyme (s) to release free chromogen that can be visually detected by color change (Patent Reg. 1357/DEL/2013).
- The assay can confirm the presence of *L. monocytogenes* within a real time of 4.30 ± 0.10 h after initial pre-enrichment of food samples in novel selective medium i.e., LSEM for 24h as against 5-7 days protocol following conventional method (ISO: 11290 Part-1: 1996).



<https://tinyurl.com/ex5y3bvk>

Aptamer for Aflatoxin M1

Institute: ICAR-National Dairy Research Institute (NDRI)

- Aptamers specific to aflatoxin M1 have been generated. These aptamers have different structural motifs.
- The dissociation constants of aptamer-aflatoxin are in Nano molar range indicating their higher affinity and thus industrially useful for developing methods for detection/estimation of aflatoxin in feed/food.
- These aptamers are of commercial value by making strategic use for mitigating aflatoxin toxicity and in removal of aflatoxin from feed/food.

<https://tinyurl.com/2z7t755b>



Aptamer for Betacasomorphin-7

Institute: ICAR-National Dairy Research Institute (NDRI)

- Aptamers specific to betacasomorphin7 (BCM7) have been generated. These aptamers have different structural motif.
- The dissociation constants of aptamer-BCM7 are in Nano molar range indicating their higher affinity for target.
- The aptamers can be used as recognition elements for developing methods for detection of BCM7 in urine and blood as well as for ascertaining whether milk is A1 or A2 in nature.
- These aptamers can also be used as therapeutic agent for overcoming effect of BCM7.

<https://tinyurl.com/89zp2ny8>



GYP Kit

Institute: ICAR-Central Soil Salinity Research Institute (CSSRI)

- Kit is user friendly and is useful for field functionaries, researchers, line department officials as well as farmers desirous of assessing soil sodicity and quantum of mineral gypsum required for chemical reclamation of sodic soil to optimizing crop production.
- It is titrimetric estimation of gypsum requirement of sodic soils in Indo-Gangetic plains by calculating the gypsum required for chemical reclamation.



<https://tinyurl.com/5abha48r>

CIFE Test Kits for Aquaculture

Institute: ICAR-Central Institute of Fisheries Education (CIFE)

Kits are inexpensive, Seven sets of kit i.e.

1. pH
2. DO
3. Salinity
4. Ammonia gas and ammonium ion
5. CIFE multi-parameter test kits for hardness, alkalinity, free carbon dioxide, Ca, Mg etc.
6. Nitrate, Nitrite
7. Phosphate, Iron and Chlorine can analyze 15 parameters

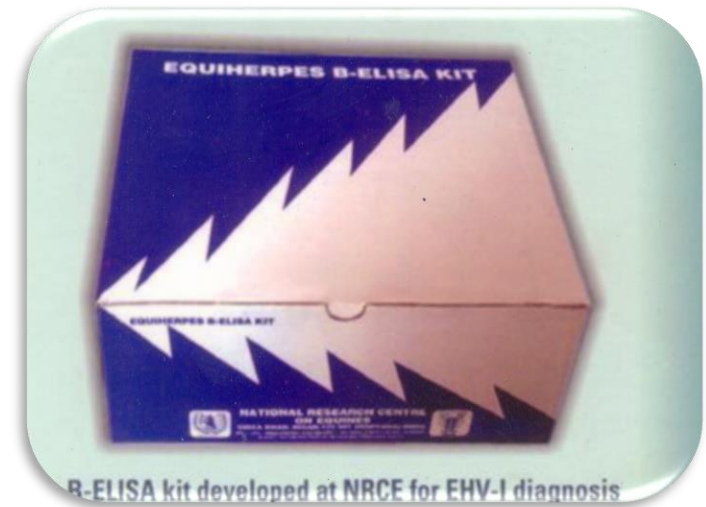


<https://tinyurl.com/ca2nehpp>

Equiherpes B-ELISA Kit

Institute: ICAR-National Research Centre on Equines (NRCE)

- ELISA kit was developed for the diagnosis of equine herpesvirus-1 (EHV-1) infection in horses.
- Infection due to EHV-1 causes abortion, stillbirths, foal mortality, respiratory and neurological diseases in horses. EHV-1 infection led abortion has been reported in ~15% of pregnant mares in organized farms which incurs huge economic losses.



<https://tinyurl.com/yd599jy4>

Equip Rotavirus Kit

Institute: ICAR-National Research Centre on Equines (NRCE)

- Rotaviruses are the major etiologic agents of severe, acute dehydrating diarrhea resulting in high morbidity and mortality in neonatal animals (including foals) and human infants.
- A monoclonal antibody (mAb)-based sandwich enzyme immunoassay (ELISA) has been developed for the diagnosis of rotavirus in different animals and human stool samples.
- This kit employs a polyclonal anti-rotavirus serum as a coating antibody to capture the rotavirus antigen and a monoclonal antibody is used for the detection of group-specific antigen present on the captured rotaviruses.

<https://tinyurl.com/4nt3x2tf>

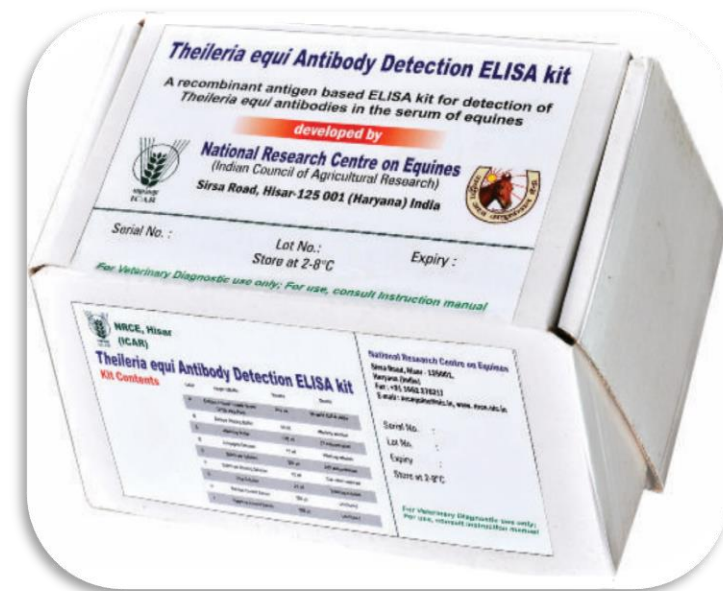


Recombinant antigen-based ELISA kit for diagnosis of Theileria equi infection (T. equi - ELISA kit)

Institute: ICAR-National Research Centre on Equines (NRCE)

- Theileria equi -ELISA kit, is a recombinant erythrocyte merozoite antigen (EMA-2) based plate ELISA for the detection of antibodies against Theileria equi infection in equine.
- The kit has a ready-to-use ELISA plate onto which serum samples can be loaded after proper dilution.
- The results can be obtained in 1hr 30 min times after the application of serum samples.

<https://tinyurl.com/3zyzcjhf>



Lateral flow assay for rapid diagnosis of Theileria equi infection

Institute: ICAR-National Research Centre on Equines (NRCE)

- The kit is based on a recombinant *T. equi* merozoite surface antigen (EMA-2) conjugated with gold-nano particles.
- The diagnostic sensitivity (Dsn) and specificity (Dsp) of LFA vis-à-vis ELISA were 0.945 and 0.916, respectively, indicating its applicability to the field samples.
- LFA kit offers many advantages as compared to ELISA, such as no equipment or trained personnel needed and visually readable results obtained within 10 minutes.



<https://tinyurl.com/shkhfmjh>

Recombinant antigen-based ELISA for diagnosis of *Trypanosoma evansi* infection in animals

Institute: ICAR-National Research Centre on Equines (NRCE)

- r-ELISA kit uses flagellar recombinant protein.
- Ready to use recombinant antigen-coated, blocked and dried plates are available for use and may be stored at 4°C for six months.
- The kit has the capacity to test 42 samples in duplicate, with a shelf life of reagents up to 6 months when kept at 4°C. The sensitivity and specificity of the r- ELISA test for detecting *T. evansi* antigen was found to be 0.92 (0.82-0.95) and 0.98 (0.96-0.99) respectively, which is comparable to OIE recommended ELISA.
- This r-ELISA kit is comparatively cheaper and can detect specific antibodies as early as day 14th post.

<https://tinyurl.com/jhuptyy2>



Pregmare Kit

Institute: ICAR-National Research Centre on Equines (NRCE)

- This is an early pregnancy kit based on ELISA which can be used for pregnancy diagnosis between 35 to 120 days of gestation in mares covered by horse stallions.
- It is based on the detection of PMSG or chorionic gonadotrophin (eCG) which is released after conception (after about 30 days of gestation) from the endometrial cups in pregnant mares.
- This kit is now in routine use at for pregnancy diagnosis in mares at field level.



<https://tinyurl.com/4msmu7d6>

A kit for detection of myostatin or any other protein with a paper dip assay

Institute: ICAR- Directorate of Poultry Research (DPR)

- Paper-dip method used is very quick to detect. The whole process of detection needs 10 minutes provided enough serum samples are available.
- This method is applicable without using any equipment.
- Can detect level of myostatin and future growth such as high or low body weight at juvenile as well as adult stage in birds.



<https://tinyurl.com/tu8sfub4>

Concanavalin A (Con-A) ELISA kit for Newcastle disease virus Sero-monitoring in chicken

Institute: ICAR- Directorate of Poultry Research (DPR)

- The kit performs with single serum dilution, hence 46 samples in duplicate can be analyzed in single ELISA plate.
- The kit is useful for poultry industry in assessing quality and efficacy of the ND vaccine used.
- To ensure the efficacy of vaccination method followed.
- To monitor the protective status of birds against ND.
- To ascertain the need of booster vaccination and its timing.
- To diagnose the NDV field virus outbreak.

<https://tinyurl.com/zbda2nvv>



CIRC-COWCAM Assay

Institute: ICAR- Central Institute for Research on Cattle (CIRC)



- The CIRC-COWCAM Assay kit is useful for detecting cow milk adulteration in camel milk and vice versa at a minimum level of 1%. The test can be completed in less than 4 hours.
- The kit is less expensive, user friendly, rapid and specific in detection of adulteration of camel milk with cow milk or vice-versa.

<https://tinyurl.com/4htanm4n>

CIRC- Assay for detecting A1A2 milk in Cattle and Buffalo

Institute: ICAR- Central Institute for Research on Cattle (CIRC)

- Used for early detection of CVM carrier animals.
- The test is earmarked with its Rapidity (can be completed within 2-3 hours), user-friendliness (as it is easy to perform), Economical (because it does not need expensive equipment and reagents) and Specificity (as ensured by the deliberate mismatch introduced into the primers).
- The assay may prove to be an effective tool for selecting CVM free animals especially young bulls at their early stage of life.

<https://tinyurl.com/35jdh29h>

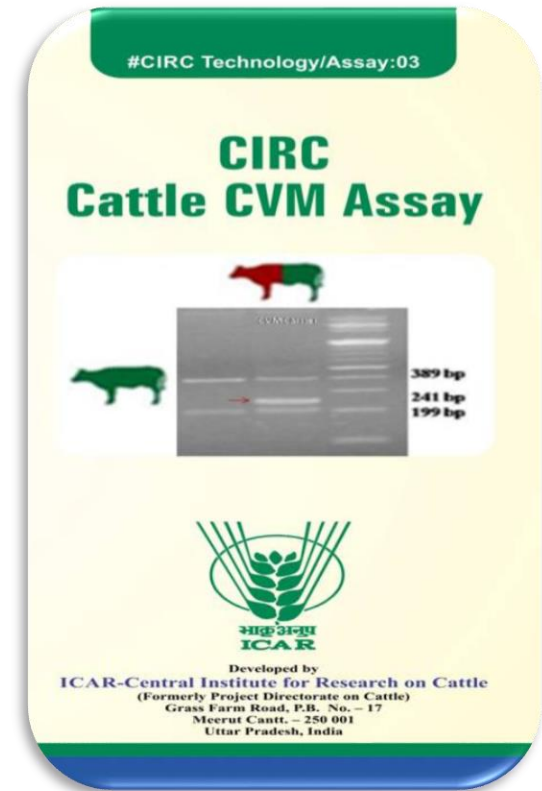


CIRC-Cattle CVM assay

Institute: ICAR- Central Institute for Research on Cattle (CIRC)

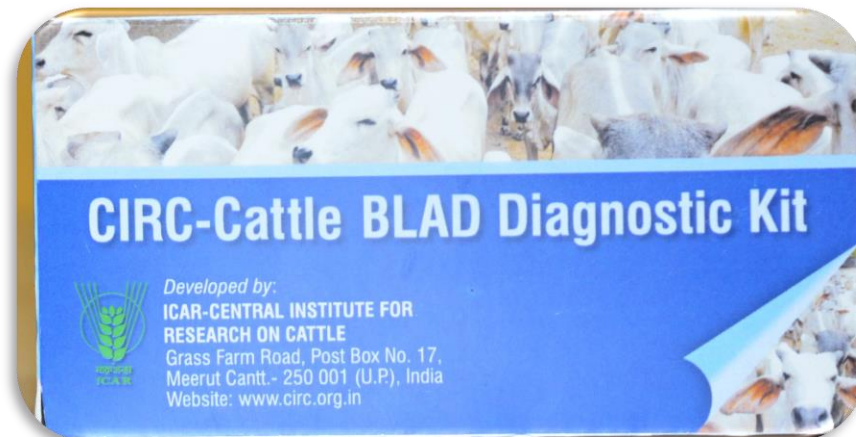
- Useful for routine screening of blood/milk samples obtained from different breeds of cattle and buffalo for identifying A1 vs A2 milk.
- The test is earmarked with its Rapidity (can be completed within 5-6 hours), user-friendliness (as it is easy to perform), Economical (because it does not need expensive equipment and reagents) and Specificity.
- The assay may prove to be an effective tool for identifying A1vs A2 type milk.

<https://tinyurl.com/4mmf45wh>



CIRC-Cattle BLAD Diagnostic Assay

Institute: ICAR- Central Institute for Research on Cattle (CIRC)



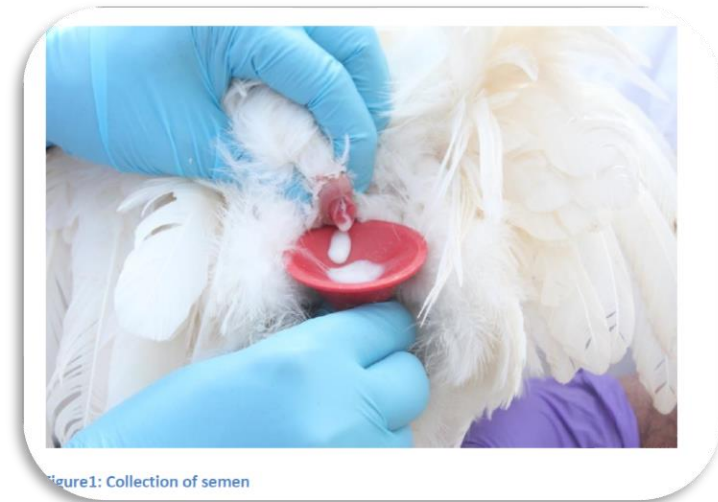
- Used for early detection of Bovine Leukocyte Adhesion Deficiency (BLAD) carrier animals.
- The test is earmarked with its Rapidity (can be completed within 2-3 hours).
- The kit may prove to be an effective tool for selecting BLAD free animals especially young bulls at their early stage of life.

<https://tinyurl.com/5yeb4z5t>

CARI Poultry Semen Diluent for Artificial Insemination Technology

Institute: ICAR- Central Avian Research Institute (CARI)

- Using the technique of semen dilution, semen can be preserved for several hours without significant loss of fertilizing ability.
- This will be very beneficial in transporting the semen of valuable sire of inheritance for high egg and meat yield from one place to another part of the country/world.



<https://tinyurl.com/4m7hx248>

Argulus (A. Japonicus and A. Siamensis) PCR Detection Kit

Institute: ICAR- Central Institute of Freshwater Aquaculture (CIFA)

- The Argulus PCR Detection Kit utilizes the polymerase chain reaction as the method in species specific identification of the two important Argulus sp., *A. siamensis* and *A. japonicus*.
- It is based on gene amplification of DNA fragments exclusively specific for each species.
- It is not only required for identification of species at the earliest with 100% accuracy but would render further study in developing vaccines or other control measures.

<https://tinyurl.com/25nk2dst>

Koi Herpes Virus (KHV) PCR-Based Diagnostic Kit

Institute: ICAR- Central Institute of Freshwater Aquaculture (CIFA)

- The ready-to-use PCR Kit contains the components for polymerase chain reaction that allows rapid amplification of KHV DNA using the gene-specific primers.
- the same primers can also be used in real time PCR to enhance the sensitivity as well as to quantify KHV DNA in infected tissues.
- The nested PCR kit can detect up to single virus particle in tissues. This kit can be used in disease surveillance, developing control measures and detection of virus in hatcheries and farms.



<https://tinyurl.com/39v7apb5>

Spring Viraemia of Carp PCR-Based Diagnostic Kit

Institute: ICAR- Central Institute of Freshwater Aquaculture (CIFA)

- This kit can be used in disease surveillance, developing control measures and detection of virus in hatcheries and farms.
- The primers provided have also been checked in real time PCR to increase the sensitivity and specificity of the kit as well as to quantify viral particles in infected tissues.

<https://tinyurl.com/eunsffhb>

White Tail Disease (Macrobachium Rosenbergii Nodavirus (MrNV) Detection Kit Viraemia of Carp PCR-Based Diagnostic Kit

Institute: ICAR- Central Institute of Freshwater Aquaculture (CIFA)

- Nested RT-PCR-based diagnostics have been standardized to detect linearized RNA segment of MrNV, which have the detection limits of 0.01 fg (~four virus particles) for the RNA segment II.
- The kit can be used to screen live broods to remove carriers and also the seeds to remove contamination.

<https://tinyurl.com/r4nucw4k>

Process of Unambiguous Identification of Intergeneric Hybrids of Rohu and Catla (Family: Cyprinidae) Using A Molecular Marker Based Kit

Institute: ICAR- Central Institute of Freshwater Aquaculture (CIFA)



- In the present approach, a molecular marker-based method was developed for differentiating the hybrids from their parents at molecular level.

<https://tinyurl.com/34r7h6zz>

1. Rohu (*Labeo rohita*) Natural killer enhancing factor B cDNA clone in expression system for recombinant protein-polyclonal antibody-ELISA based assay.

<https://tinyurl.com/h3jp5h7u>

2. Rohu (*Labeo rohita*) CuZn superoxide dismutase cDNA clone in expression system for recombinant protein-polyclonal antibody-ELISA based assay

<https://tinyurl.com/4f7vac2p>

ICAR- Central Institute of Freshwater Aquaculture (CIFA)

1. cDNA clone in expression system for recombinant protein-polyclonal antibody from rohu and sarana.

<https://tinyurl.com/4uxkkkmw>

2. Rohu (Labeo rohita) Lysozyme G cDNA clone in expression system for recombinant protein-polyclonal antibody-ELISA based assay.

<https://tinyurl.com/k8e325f7>

3. Rohu (Labeo rohita) Glutathione-S-transferase (mu) clone in expression system for recombinant protein-polyclonal antibody-ELISA based assay.

<https://tinyurl.com/2bwckfxs>

4. Aeronomas hydrophila Attenuated vaccine strain

<https://tinyurl.com/jtkkpx7j>

Indirect ELISA Kit for Avian Influenza Virus Antibody Detection in Chicken

Institute: ICAR- National Institute of High Security Animal Diseases (NIHSAD)

- It is a recombinant nucleoprotein-based ELISA, is more sensitive than AGID and HI, can be performed in all the labs with ease and is suitable for screening of a large number of chicken sera samples.
- The indigenously developed indirect ELISA for avian influenza virus antibody detection is a cheaper alternative of imported kits for regular sero-monitoring of commercial and backyard chicken and can be performed easily by laboratory personnel.

<https://tinyurl.com/3cv6j9rn>