GELSAFE Nucleic Acid Gel Stain

Ref.GELSAFE 1 ml
Conservación: +4ºC

1.INTRODUCTION

GELSAFE Nucleic Acid Gel Stain Solution (20,000x) is a new and safe nucleic acid stain, an alternative to the traditional ethidium bromide (EtBr) stain for detecting nucleica cid in agarose gels.

It emits green fluorescence when bound to DNA or RNA. This new stain has two fluorescence excitation maxima when bound to nucliec acid, one centered at 309 nm and another at 419 nm. The fluorescence emision of GELSAFE bound to DNA is centered at 537 nm and is as sensitive as EtBr.

Compared to EtBr, known as strong mutagen, GELSAFE causes much fewer mutations in the Ames test. In addition, GELSAFE has a negative result in mouse marrow chromophilous erythrocyte micronucleus test and mouse spermary spermatocyte chromosomal aberration test.

Features:

- Used for detecting DNA and RNA.
- Alternative to the ethidium bromide staining.
- As sensitive as EtBr or more sensitive than that.
- Non-toxic, non-mutagenic and non-carcinogenic.
- No hazard waste.

Aplications:

- Visualization of DNA and RNA bands as they separate during agarose gel electrophoresis
- Isolation of DNA fragments for subcloning without introducing mutations normally caused by EtBr

2.PROTOCOL

Resuspend briefly GELSAFE solution with vortex gently before use because some precipitate formation is possible due to the high concentration of the components.

1. Prepare a 100 ml of agarose solution (concentration from 0.8-3%) in a 250 ml flask and mix it throughly. Place the flask in the microwave, heat in until the solution is completely clear and small floating particle are visible.

   NOTE: The thickness of gel should be less tan 0.5 cm since thick gels may decrease sensitivity.

2. Cool the solution to 60 ° C before adding GELSAFE. Add 5 µl of GELSAFE to the agarose solution. Swirl the flask gently to mix the solution and avoid forming bubbles.

3. Pour agarose solution into mold with appropriate comb for agarose gel formation.

   NOTE: Repeated melting of gels containing GELSAFE may result in low sensitivity.

4. Allow the agarose gel to cool until solidified. Place the gel in the electrophoresis chamber with the corresponding buffer, loading samples and perform electrophoresis.

5. Detect the bands under UV illumination.

Observations:

- Normally, TAE or TBE buffer is used for electrophoresis. TAE buffer based on acetic acid has a disadvantage of calorfication and by contrast, TBE buffer based on boric acid has disadvantage of volatility. As the result of observing the DNA staining pattern with electrophoresis analysis time, TBE buffer sowed somewhat clear result of electrophoresis analysis.

- The red/orange filters for EtBr-stained gels should not be used with GELSAFE-satined gels. The filters fro SYBR Green-stained gels (at 494nm and 521 nm) can be used. In addition, yellow, green gelation or cellophane filter can be used.

- The intact DNA fragments purified from agarose gel can increase the efficiency of subsequent molecular biology manipulations such as cloning, transformation and transcription.

- It can also be used as post-staining. If the band is not light, it is possible to post-staining the gel. Add 5 µl in 100 ml of buffer solution and immersing the gel for 10-20 minutes.

- GELSAFE can perform with low concentration of DNA. However, the samller frgaments of less tan 300bp are not as bright as the bigger one.

- It is not recommended to use GELSAFE for " pulse field electrophoresis".