



HuanKai Biology



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HANDY PLATE®
For Microbial
Detection

Guangdong Huankai Biology Sci.&Tech. Co., Ltd.

Guangdong Huankai Biology Sci.&Tech. Co., Ltd. is located in Zhaoqing National High-tech Development Zone, covering an area of 200 acres. We focus on the development and production of microbial rapid detection products, cell culture media, disposable consumables, intelligent instruments and equipment, and refined extraction of biological raw materials. Now we have a series of rapid detection reagent including vaccine culture medium, fluorescence quantitative PCR reagents, multiplex PCR reagents and colloidal gold detection cards. At present, there are more than 100 kinds of products on sale, covering food and beverage, aquaculture, pharmaceutical, vaccine production, medical equipment, cosmetics, feed and other industries, as well as local disease control departments, food and drug inspection institutes, entry-exit inspection and quarantine agencies, third-party testing agencies, and other institutional units.

Guangdong Huankai Biology Sci.&Tech. Co., Ltd. is the industrialized expansion production R&D base of Guangdong Huankai Microbial Sci.&Tech. Co., Ltd. (under the Guangdong Institute of Microbiology). Which is one of the complete production and R&D bases for culture medium and rapid detection reagents, forming thousands of microbial safety monitoring and control products with independent intellectual property rights, and the product sales are among the best in China. The company has a research and development institution "Guangdong Province Food Microbial Safety Engineering Technology Research and Development Center", and has also won the national high-tech enterprise, Guangzhou Development Zone intellectual property demonstration enterprise, Guangdong private technology enterprise, Guangzhou innovative pilot enterprise, and actively undertakes national Industry standard-setting enterprise, post-doctoral research workstation, Guangdong doctoral workstation, Guangzhou post-doctoral innovation practice base, Guangzhou famous trademark, Guangdong famous trademark and many other qualifications and honors.

Guangdong Huankai Biology Sci.&Tech. Co., Ltd. is also a transformation of the achievements platform of the Institute of Microbiology of Guangdong Academy of Sciences. With advanced R&D and production equipment and a professional technical team, the company currently focuses on the research and development of microbial rapid detection products, with strictly controls the raw material, production and quality inspection processes, we provides customers with cost-effective products. The product performance can be comparable to that of international famous brands.



Honorary Qualifications

- National High-Tech Enterprise
- Academician Workstation
- Guangdong Food Microbial Safety Engineering Technology Research and Development Center
- Research and Development Center
- Guangdong Province Doctoral Workstation
- Guangdong Province Postdoctoral Research Workstation
- Famous Trademark in Guangdong Province
- Certified by ISO9001, FDA, NSF and other quality systems



Scientific Research Achievements

- Second Prize of National Science and Technology Progress Award: Rapid Detection and Efficient Control Technology for Food Microbial Safety
- First Prize of Guangdong Province Science and Technology: Research on Rapid Detection and Monitoring Technology for Food Microbial Safety
- Invention Gold Award: Research on Anti Interference Microbial Culture Media
- Invention Silver Award: Salmonella Culture Medium, Detection Kit, and Detection Method
- China Patent Excellence Award: Microbial Anti-Interference Rapid Detection Method and Bromate Control Method for Bottled Drinking Water



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HANDY PLATE®

Your Pocket Microbiology Laboratory!



The HANDY PLATE®series of microbial test plates is an upgraded replacement product for traditional culture media.

HANDY PLATE®series microbial test plates are supported by lightweight waterproof paper material, which is covered with a dry medium layer (nutrients, coagulants, selection inhibitors, color-developing agents) and a transparent water-proof membrane, which is sterilized by irradiation. The medium layer can absorb 1mL of the sample solution to form a gel layer, and the chromogenic reagent produced by the growth and metabolism of microorganisms can be hydrolyzed to make the colonies develop color.

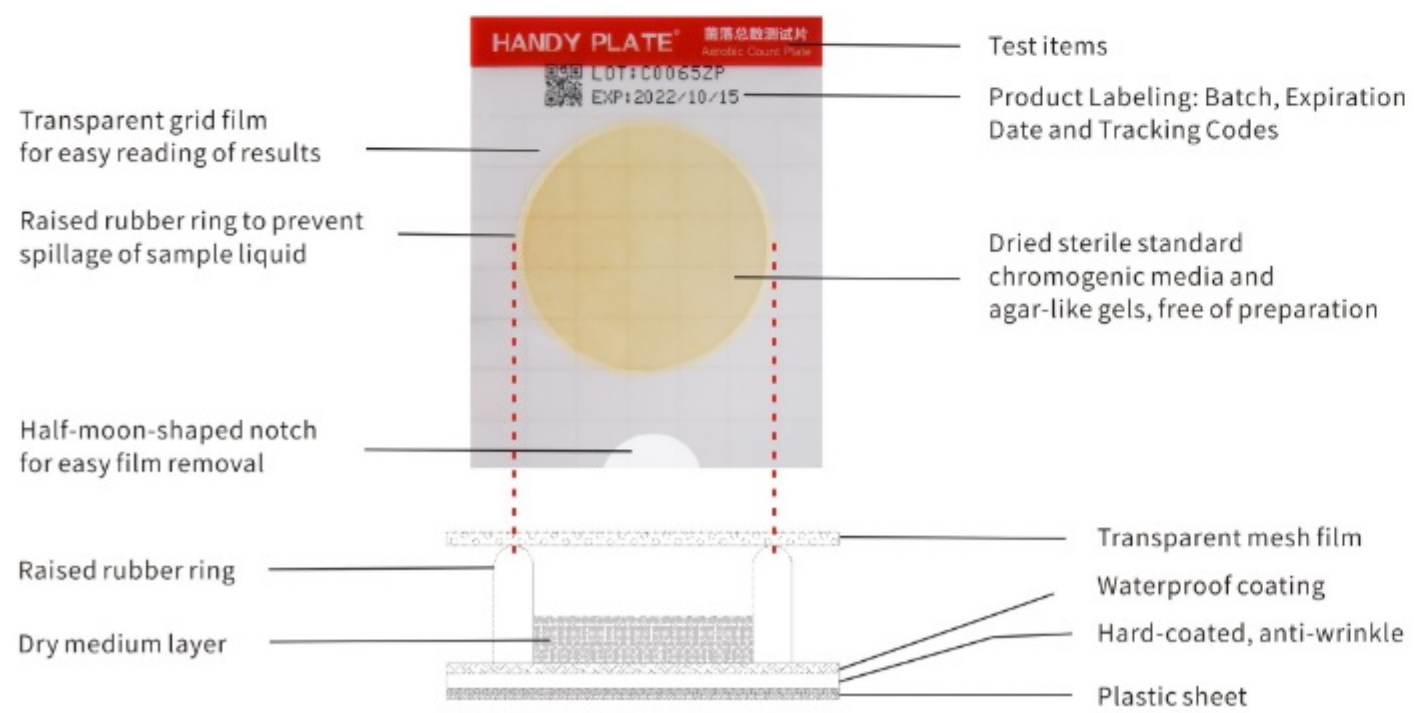
This series of products includes hygienic indicator bacteria and pathogenic bacteria test plates, which can be widely used for microbial testing of food and beverages, covering raw materials, final products and hygienic indicator bacteria in the growth environment (total colony, coliforms, mold and yeast) and rapid detection of pathogenic bacteria (Salmonella, Staphylococcus aureus, Cronobacter sakazakii, etc.).





Ergonomic, no pressure plate required for sample loading, easy to operate

- The test plate is covered with a transparent grid film, which is convenient to observe and mark the sample information;
- Each test plate has a unique code for easy traceability;
- Round dry sterile standard medium and agar-like gel, free of configuration;
- There is a raised rubber ring around the medium to prevent the sample liquid from overflowing;
- The bottom is designed with a half-moon-shaped notch, which is convenient for peeling off the film.



Product advantages

24 hours rapid total colony count
48 hours rapid mold&yeast Count

- Accurate results High-performance chromogenic medium, accurate and reliable results;
- Regular colony Agar-like gel, colony arrangement is more regular than non-woven paper;
- Simple and easy to use Lightweight design, more convenient for storage, transportation and use;
- Economical and environmental protection No dust, small size, light weight, more economical and environmentally friendly;
- Long shelf life Dry anhydrous medium, sterilized by irradiation, has stable performance and a longer shelf life;
- Not easy to liquefy Bacillus and other no liquefaction diffusion, easier to observe and count;
- Not easy to spread Control the spread of mold mycelium, the colony is more concentrated, and the color is more obvious.

Too much space for incubator



Can save 90% of the cultivation space

Instructions

Fast and accurate measurement in just 3 steps

- 1 Inoculate**
 Open the transparent film, add 1mL of sample solution to inoculate in the center of the inoculation area, and cover the film (falls naturally, no external force is required)
- 2 Incubation**
 (incubate according to the corresponding conditions)
- 3 Interpretation**
 Count typical characteristic colonies directly with naked eye, or with the aid of a magnifying glass or colony counter, etc.



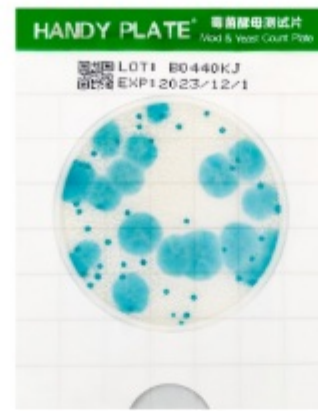
Aerobic Count Plate (HP001)

Incubation: 36°C for 24h
 Interpretation: containing tetrazolium indicator, red colony



Coliform Count Plate (HP002)

Incubation: 36°C for 24h
 Interpretation: contains tetrazolium indicator, red colony, fermented lactose to produce acid (yellow acid ring) and gas (with bubbles)



Mold & Yeast Count Plate (HP003)

Incubation: 28°C for 48-72h
 Interpretation: containing indole indicator, blue-green colony



Staphylococcus Aureus Detection Plate (HP007)

Incubation: 36°C for 24h
 Interpretation: contains indole indicator, and the colonies are dark magenta. **Cover confirmation plate and culturing for 4-6 hours will turn into blue-green colonies**



Rapid Aerobic Count Plate (HP011)

Incubation: 36°C for 24h
 Interpretation: containing indole indicator and tetrazolium indicator, the colonies are blue-green, blue-violet, blue-black or red



Rapid Mold & Yeast Count Plate (HP012)

Incubation: 28°C for 48h
 Interpretation: containing indole indicator, blue-green colony



E.coli / Coliform Count Plate (HP004)

Incubation: 36°C for 24h
 Interpretation: contains indole indicator, Escherichia coli is blue-green colony, other coliforms are magenta-purple colonies



Salmonella Detection Plate (HP005)

Incubation: 36°C for 24h
 Interpretation: containing indole indicator, Salmonella is a red colony with a yellow acid ring, with or without bubbles, and other bacteria are red without an acid ring, blue-green, blue-gray, black, brown or colorless. **Cover the confirmation plate and incubate for 3-5h, the positive strains turn blue/green**



Cronobacter Sakazakii Detection Plate (HP006)

Incubation: 44°C for 24h
 Interpretation: contains indole indicator, Cronobacter sakazakii is blue-green, other bacteria are magenta, black, brown or colorless



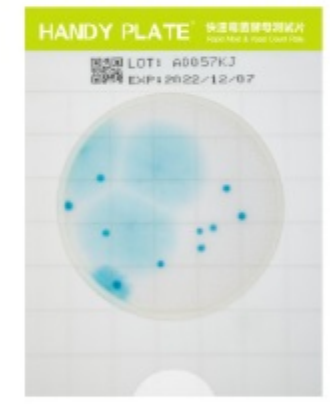
Environmental Listeria Detection Plate (HP009)

Incubation: 36°C for 24h
 Interpretation: contains enzyme substrate indicator and the colonies are blue-green. If the culture area is light green, the bacterial concentration may be too high and the sample needs to be further diluted to obtain an accurate count.



Rapid Aerobic Count Plate (HP011A) Membrane Filter Method

Incubation: 36°C for 24h
 Interpretation: contains indole indicator and tetrazolium indicator, the colonies are blue-green, blue-violet, blue-black, or red.



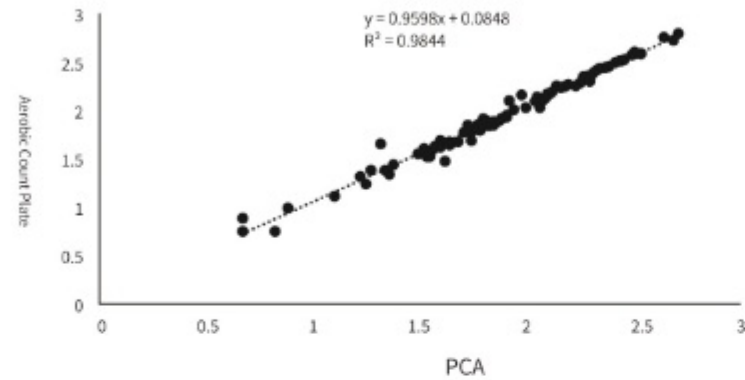
Rapid Mold & Yeast Count Plate (HP012A) Membrane Filter Method

Incubation: 28°C for 48h
 Interpretation: contains indole indicator, the colonies are blue-green

The test results are reliable and have a good fit with the standard method

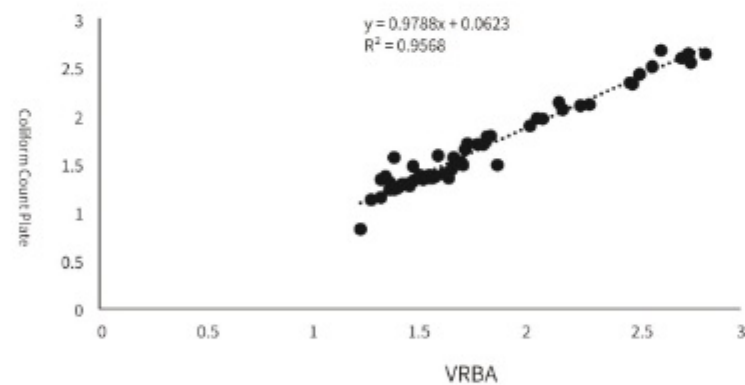
pure bacteria

The linear equation of the Aerobic Count Plate and PCA: $Y=0.9598 X - 0.0848$, the correlation coefficient $r=0.9598$, the coefficient of determination $R^2=0.9844$, Aerobic Count Plate and the standard PCA method have a good fit.



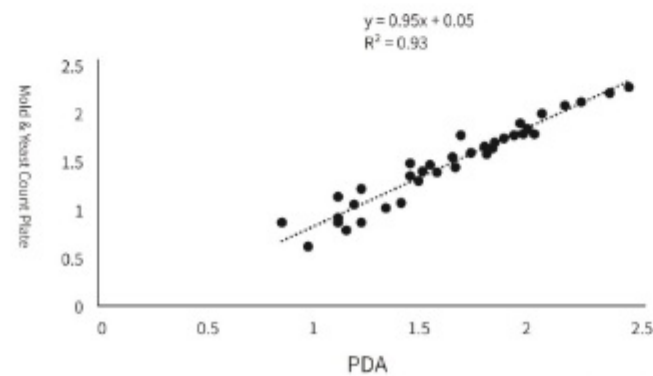
▲ Figure 1 Pure strains on the Aerobic Count Plate (n=155)

The linear equation of Coliform Count Plate and VRBA: $Y=0.9788 X - 0.0623$, the correlation coefficient $r=0.9788$, the determination coefficient $R^2=0.9568$, Coliform Count Plate and the standard VRBA method have a good fit.



▲ Figure 2 Pure strains on the Coliform Count Plate (n=73)

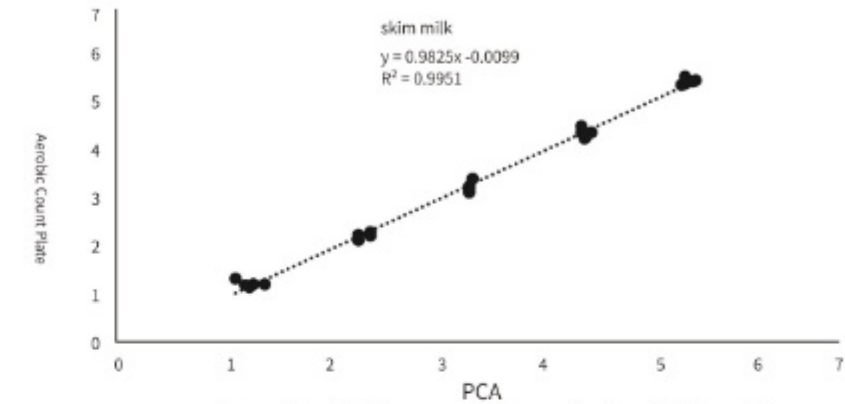
The linear equation of Mold&Yeast Count Plate and PDA: $y=0.95x + 0.05$, correlation coefficient $r=0.9644$, coefficient of determination $R^2=0.93$, Mold&Yeast Count Plate and standard PDA method have a good fit.



▲ Figure 3 Pure strains on Mold&Yeast Count Plate (n=51)

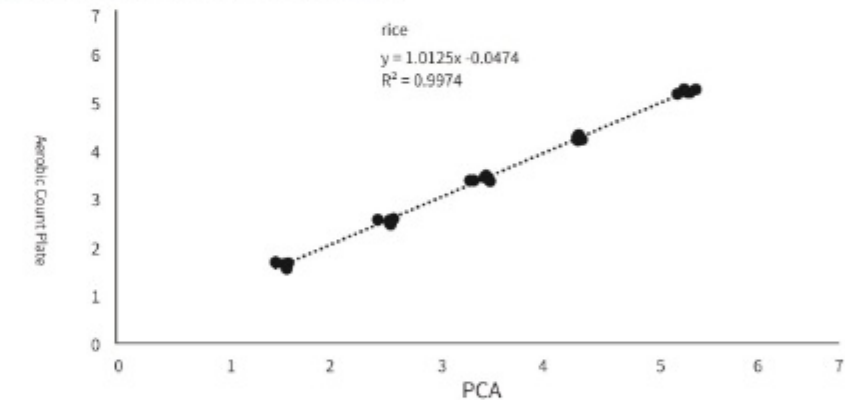
Samples (artificial contamination and natural contamination)

The detection effect of Cronobacter sakazakii in skim milk by the Aerobic Count Plate was equivalent to that of the standard PCA method. The P value of T test was $0.87 > 0.05$, and there was no significant difference. The detection effect of Handy plate is slightly better than that of PCA (bias=0.068). The linear equation of Aerobic Count Plate and PCA: $Y=0.9825 X - 0.0099$, the correlation coefficient $r=0.9975$, the coefficient of determination $R^2=0.9951$, Aerobic Count Plate and the standard PCA method have a good fit.



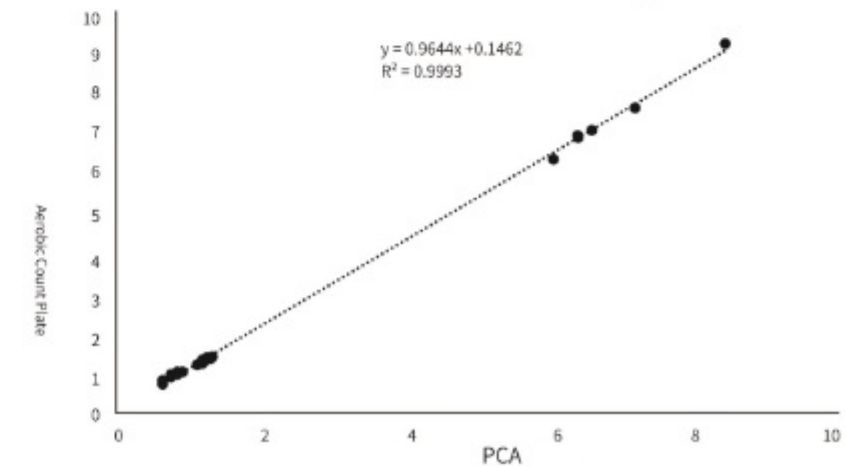
▲ Figure 4 Artificial contamination on the Aerobic Count Plate

The detection effect of the Aerobic Count Plate on Escherichia coli in rice was equivalent to that of the standard PCA method, and the P value of the T test was $0.9998 > 0.05$, and there was no significant difference. The detection effect of the Aerobic Count Plate was slightly better than that of PCA (bias=0.000544). The linear equation of the total number of colonies test piece and PCA: $Y=1.0125 X - 0.0474$, the correlation coefficient $r=0.9987$, the coefficient of determination $R^2=0.9974$, Aerobic Count Plate and the standard PCA method have a good fit.



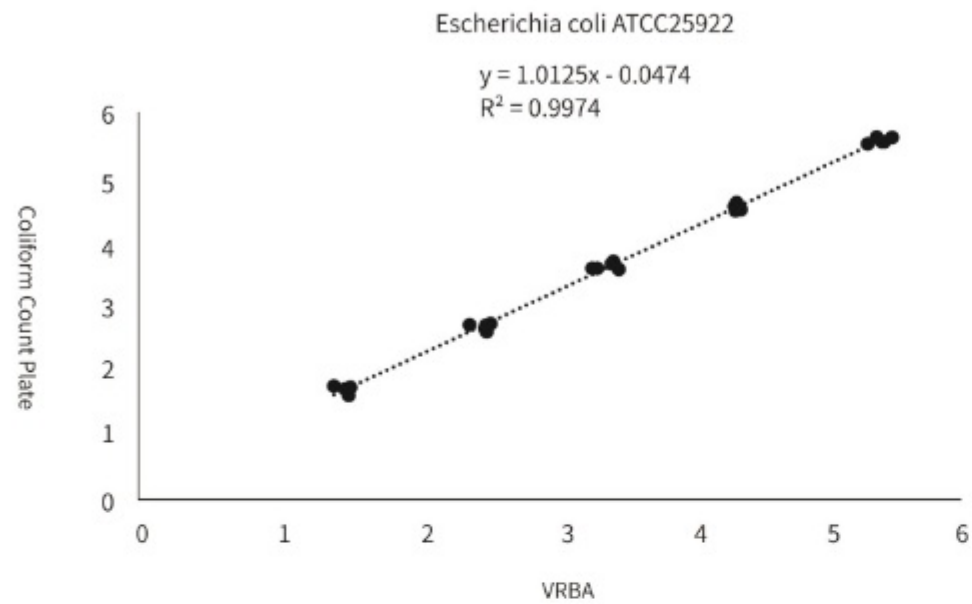
▲ Figure 5 Artificial contamination on Aerobic Count Plate

The linear equation of the Aerobic Count Plate and PCA: $Y=0.9644 X + 0.1462$, the correlation coefficient $r=0.9996$, the Aerobic Count Plate and the standard PCA method have a good fit.



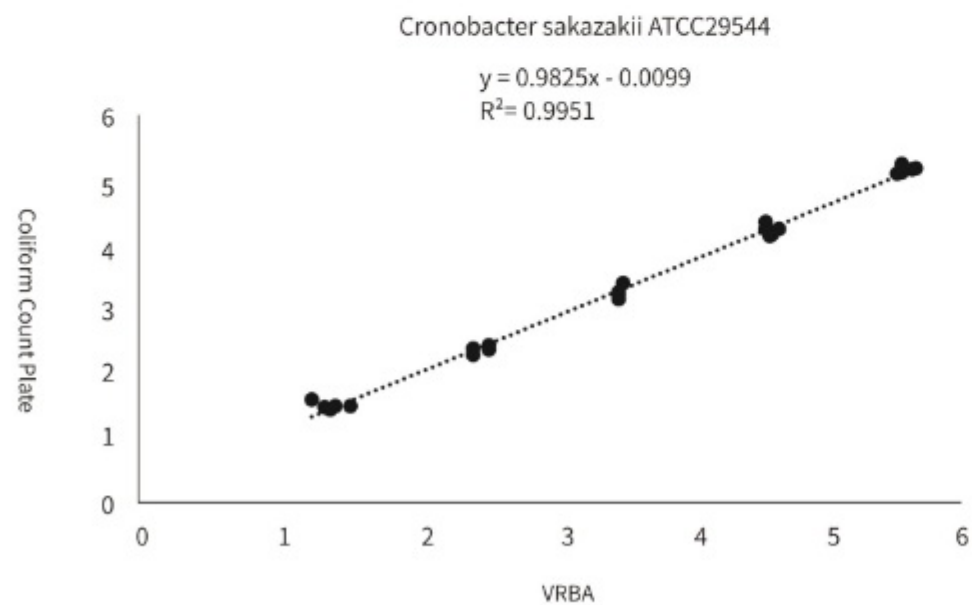
▲ Figure 6 Natural contamination of the total Aerobic Count Plate (n=22)

For the samples artificially contaminated with "Escherichia coli ATCC25922", the linear equation of the Coliform Count Plate and VRBA: $y=1.0125x - 0.0474$, the correlation coefficient $r=0.9987$; the Coliform Count Plate and the standard VRBA method have a good fit.



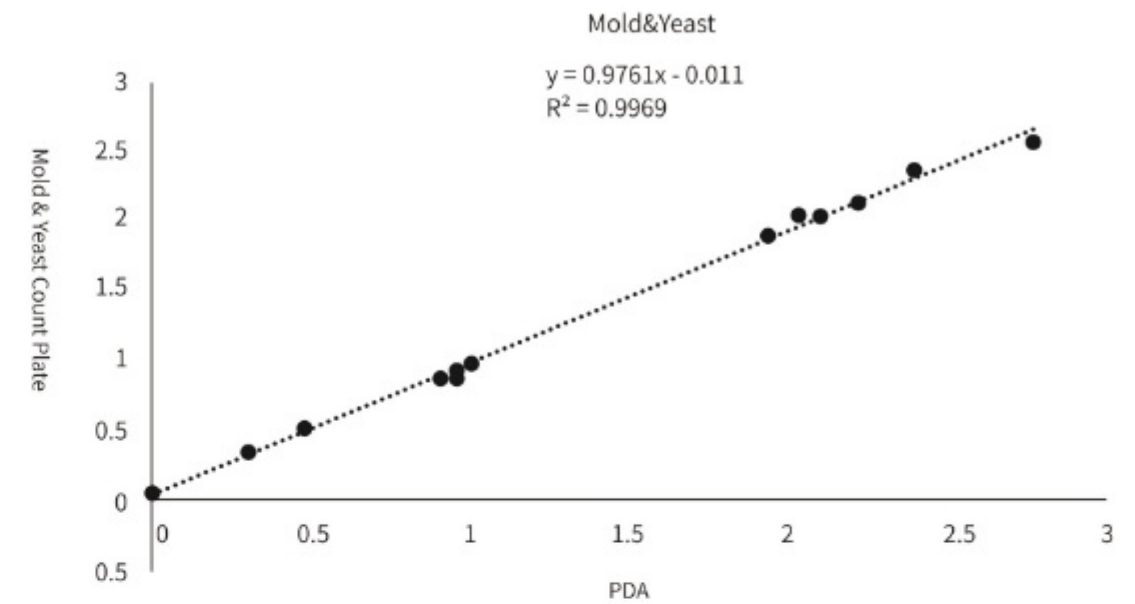
▲ Figure 7 Artificial contamination of Escherichia coli on Coliform Count Plate

For the samples artificially contaminated with "Cronobacter sakazakii ATCC29544", the linear equation of Coliform Count Plate and VRBA: $y=0.9825x - 0.0099$, correlation coefficient $r=0.9975$; the Coliform Count Plate and the standard VRBA method have a good fit.



▲ Figure 8 Artificial contamination of Cronobacter sakazakii on Coliform Count Plate

The linear equation of the Mold&Yeast Count Plate and PDA: $y=0.9761x - 0.011$, the correlation coefficient $r=0.9984$, the Mold&Yeast Count Plate and the national standard PDA method have a good fit.



▲ Figure 9 Natural contamination on Mold&Yeast Count Plate

PRODUCT LIST

Product Name	Code	Usage	Spec.	Storage	Shelf Life
Aerobic Count Plate	HP001	Total Colony Count	20 tests / pack	2~8°C	18 months
Coliform Count Plate	HP002	Coliform Count	20 tests / pack	2~8°C	18 months
Mold&Yeast Count Plate	HP003	Mold&Yeast Count	20 tests / pack	2~8°C	18 months
E.coli/Coliform Count Plate	HP004	E.coli/Coliform Count	20 tests / pack	2~8°C	18 months
Salmonella Detection Plate	HP005	Salmonella Detection	20 tests / pack	2~8°C	18 months
Cronobacter Sakazakii Detection Plate	HP006	Cronobacter Sakazakii Detection	20 tests / pack	2~8°C	18 months
Staphylococcus Aureus Detection Plate	HP007	Staphylococcus Aureus Detection	20 tests / pack	2~8°C	18 months
Listeria Detection Plate	HP009	Listeria Detection	20 tests / pack	2~8°C	18 months
Rapid Aerobic Count Plate	HP011	Rapid Total Colony Count	20 tests / pack	2~8°C	18 months
Rapid Aerobic Count Plate (Membrane Filter Method)	HP011A	Rapid Total Colony Count	20 tests / pack	2~8°C	18 months
Rapid Mold&Yeast Count Plate	HP012	Rapid Mold&Yeast Count	20 tests / pack	2~8°C	18 months
Rapid Mold&Yeast Count Plate (Membrane Filter Method)	HP012A	Rapid Mold&Yeast Count	20 tests / pack	2~8°C	18 months

Microbial Detection Confirmation Plate

Product Description

The confirmation reaction plate independently developed by Huankai Biology Co.,Ltd is used with the corresponding handy plate to identify and confirm the suspicious bacteria. The suspicious bacteria in the handy plate can be confirmed within 3-4 hours, which makes the verification work faster, more convenient and simpler.

Advantage

- Accurate results Specific expression to change color which make results more accurate and reliable;
- Quick response After adding the confirmation plate, it only takes 3-4 hours to incubate for confirmation;
- Simple and easy to use Lightweight design, ready-to-use sterile products, more convenient for storage and transportation.



Instructions



1 Open the transparent film, add the confirmation reaction plate in the center of the inoculation area, and cover with the film



2 Incubation
(incubate according to the corresponding conditions)



3 Interpretation
Count typical characteristic colonies directly with naked eye, or with the aid of a magnifying glass or colony counter, etc.

Salmonella Confirmation Plate



Before covering the confirmation plate

A large number of yellow acid rings appear on the plate, but the color of the colony is not obvious, so it is hard to judge whether there is a target strain



Cover confirmation reaction plate and incubating for 3 hours

After adding the confirmation reaction plate and incubating for 3 hours, it can be found that the positive colonies have turned blue/green

Staphylococcus Aureus Confirmation Plate



Before covering the confirmation plate

Shown as magenta colonies on the plate



Cover confirmation plate and incubating for 4-6 hours

After adding the confirmation reaction plate and incubating for 4-6 hours, it turns into a blue-purple colony

PRODUCT LIST

Product Name	Code	Usage	Spec.	Storage	Shelf Life
Salmonella Confirmation Plate	HP005C	Suspicious colony confirmation	5 PCS / PACK	2~8°C, avoid light	12 months
Staphylococcus Aureus Confirmation Plate	HP007C	Suspicious colony confirmation	5 PCS / PACK	2~8°C, avoid light	12 months