




## **Analisis *E.Coli* dan *Coliform* Secara Otomatis tanpa Laboratorium Mikrobiologi**


### **PT ECOSAINS HAYATI**

*Accommodate your satisfaction  
in laboratory experiences*

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# Eco-Sains

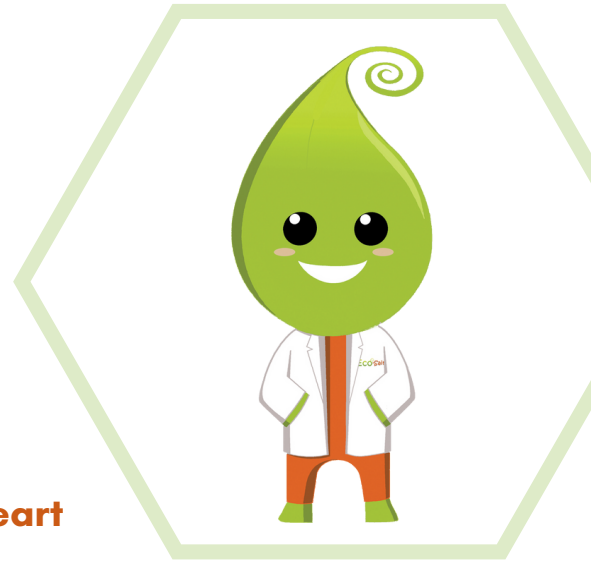
**We Offer**  
**Excellent product in wide range application**

General Laboratory Equipment  
Analytical Measurement Equipment  
Life Science Equipment

**We**  
**Commit to serve with sincere heart**

Friendly sales team  
Favorable staff member

**We Are**  
**Official distributor for famous brand names**



## OUR TEAM

 **Application Scientist**

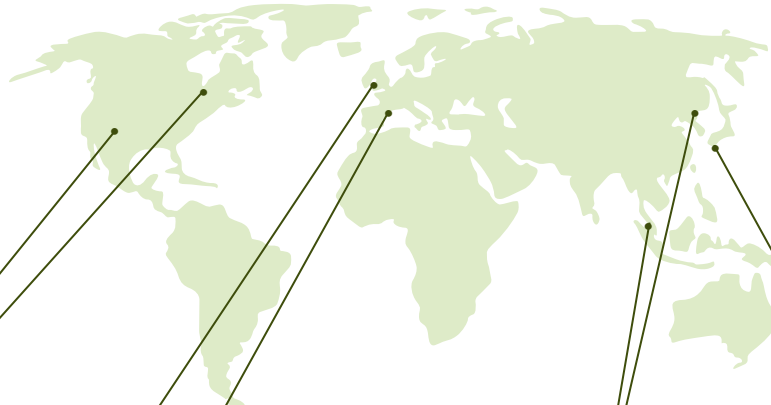
 **Sales Marketing**

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*We accomodate your satisfaction in laboratory experiences*



**USA**



- Pocket Testers
- Smart Pocket Testers
- Solutions
- Portable Meters
- Portable pH Meters for industrial Applications
- Accessories
- Benchtop Meters
- Electrodes/ Probes



- DNA Synthesizer & Custom Oligos



- CRISPR Gene Editing
- Cloning Kits & Vectors
- Competent Cells
- Enzymes
- In Vitro Transcription
- Next Generation Sequencing
- Nucleic Acid Extraction and Purification
- PCR & Amplification
- Protein Expression
- Transposon Mutagenesis

**CANADA**



- Tecta - Model B16 Fully Automated Microbiology Systems

**UNITED KINGDOM**



- Block Heater
- Colony Counter
- Water Bath
- Incubator
- Flocculator
- Microcentrifuge
- Heating Mantles
- Homogenizer
- Hotplate/Stirrers
- Overhead Stirrers
- Vortex Mixer
- Melting Point
- Recirculating Cooler
- Water Stills
- Rolls
- Rotary Evaporator



- Spectrophotometer
- Colourimeter
- Fluorimeter
- Flame Photometer
- pH Meter
- Conductivity Meter
- DO Meter



- Thermal Cycler
- Dri Block Heater
- Thermoregulator
- Gelatin Time
- Sample Concentrator
- Sample Cooling
- Hybridisation Incubator
- qPCR & Reagents



- Thermal Cycler
- qPCR & Reagents



- DNA Extraction KIT
- 2 Way Step Only 3 Minute

**GERMANY**



- Photometer
- Pooltester
- Test Strips
- Electronic Meters
- Comparator-Kit
- Special Processes
- Balanced Water Kits
- Bacteria Testing
- Reagents



- Bubble Pressure Tensiometer
- Dynamic Foam Analyzer
- Drop Shape Analyzer
- Drop Volume Tensiometer
- Foam Tester
- High Pressure Foam Analyzer
- Force Tensiometer
- Mobile Surface analyzer
- Ross Miles Foam Analyzer
- Spinning Drop Tensiometer
- Surface Roughness Analyzer
- Surface Roughness Testes
- Top View Analyzer

**NETHERLANDS**



- UPRIGHT Microscopes
- STEREO Microscopes
- INVERTED Microscopes
- PHASE CONTRAST Microscopes
- FLUORESCENCE Microscopes
- POLARIZATION Microscopes
- DARKFIELD Microscopes
- DIGITAL SOLUTIONS Cameras & Tablet cameras
- ILLUMINATION SOLUTIONS For stereo microscopy
- MAGNIFIERS & MEASURING Microscopes
- Q-SCOPE Handheld USB Microscopes

**DENMARK**

- DNA DIAGNOSTIC
- Screening Kits for Leukimia associated Translocations

**HUNGARY**



- Pens
- Pro Testers
- PRO Meters
- PRO Monitors
- Refractometers
- Photometers
- Mini Titrators
- Replacement Probes
- Solutions and Care Kit

**SINGAPORE**



- Portable & Handheld Spectrophotometers
- Photopette® Cells
- Photopette® Bio
- Photopette® Turbidity
- Photopette® OD600
- Photopette® Custom

**KOREA**



- Laboratory Scale
  - MN230A
  - MN400BF
- Semi Production
  - MN600P
- Product Scale
  - MN100/200/300
  - Es Series

**JAPAN**



- Nitrogen Tank
- Freezers
- Chest Freezers
- Lab Refrigerator

**Haier Biomedical**

- 150 C Cryo Freezer
- 86 C ULT Freezer
- 60 C Biomedical Freezer
- 40 C Biomedical Freezer
- 30 C Biomedical Freezer
- 25 C Biomedical Freezer
- Combined Refrigerator and Freezer
- Pharmacy Refrigerator
- Under Counter Pharmacy - Refrigerator
- Spark Free Refrigerator/ Freezer
- Blood Bank Refrigerator
- Laboratory Refrigerator
- Constant Temperature-Transoport Cooler



## ANALISIS MASALAH TENTANG *E.Coli* dan *Coliform*



### KASUS CEMARAN BAKTERI *E.Coli*

Indonesia tergolong negara yang memiliki kasus cemaran bakteri *E.Coli* yang cukup tinggi. Beberapa kasus cemaran bakteri sudah mencemari sumber air minum dan membahayakan kesehatan masyarakat. Keterbatasan fasilitas pengujian *E.Coli* dan waktu yang dibutuhkan untuk menguji bakteri tersebut masih menjadi kendala yang banyak dijumpai di berbagai wilayah Indonesia.

Beberapa regulasi telah mengatur batas ambang keberadaan bakteri *E.coli* dan *Coliform* untuk air minum, air baku, dan air limbah. Regulasi ini dimaksudkan untuk mengurangi terjadinya kontaminasi yang menyebabkan penyakit pada manusia. Peraturan Menteri Kesehatan RI No. 492/MENKES/PER/IV/2010 mengatur persyaratan kualitas air minum. Peraturan Menteri Kesehatan RI No. 32 Tahun 2017 mengatur standar mutu kesehatan lingkungan dan kesehatan air baku. Peraturan Menteri Lingkungan Hidup dan Kehutanan RI No. P.68/Menlhk/Setjen/Kum.1/8/2016 tentang baku mutu air limbah domestik.

#### Duh! Air di Lima Daerah Ini Tercemar Bakteri E Coli Kategori Tinggi

Diposting pada 24 Maret 2022

0 Comments Reading time: 2 menit



Cemaran bakteri *E Coli* pada air akan mengancam kesehatan manusia. Foto: Shutterstock

Jakarta (Greeners) - Kualitas air minum di beberapa daerah di Indonesia kondisinya cenderung buruk karena mengandung bakteri *E Coli* dan *Coliform*. Perlu upaya pencegahan untuk memulihkan dan menjaga kelestarian air sebagai sumber kehidupan.

Hasil kajian Kementerian Kesehatan (Kemenkes) menemukan sumber air minum di sejumlah daerah mengandung bakteri *E Coli* dan *Coliform*. Dari puluhan daerah yang air minumannya mengandung dua bakteri tersebut, lima di antaranya memiliki kandungan *E-Coli* tertinggi. Wilayah tersebut yakni Kabupaten Gianyar sebanyak 80,4 %, Kota Banjarmasin sebanyak 77,7 %, Kabupaten Sigi sebanyak 69,8 %, Jakarta Barat sebanyak 69,1 % dan Kota Batam sebanyak 65,7 %.

Menurut data BPS, tahun 2021 sebanyak 10.683 desa/kelurahan di Indonesia mengalami masalah pencemaran air. Bakteri *E. coli* dan coliform merupakan cemaran yang dapat menjadi ancaman kesehatan masyarakat. Saat ini dunia maya cukup diramaikan dengan adanya pernyataan UNICEF, bahwa hampir 70% air minum di Indonesia tercemar tinja. Terdapat empat mikroorganisme patogen yang terkandung dalam tinja yaitu virus, Protozoa, cacing, dan bakteri yang umumnya diwakili oleh jenis *Escherichia coli* (*E. coli*). Setelah tinja memasuki badan air, *E.coli* akan mengkontaminasi tubuh dan bahkan pada kondisi tertentu dapat mengalahkan mekanisme pertahanan tubuh dan tinggal di dalam pelvis ginjal dan hati.

Pengujian konvensional yang dilakukan untuk mendeteksi *E. Coli* dan *Coliform* masih memiliki beberapa kendala, diantaranya waktu yang lama, harus dilakukan di laboratorium dengan fasilitas yang lengkap, dan range pengujian yang rendah. Sehingga diperlukan alat berteknologi tinggi untuk mengatasi permasalahan yang ada.



## PERMASALAHAN METODE KONVENSIONAL

Pengujian konvensional yang masih dilakukan untuk pengujian *E. Coli* dan *Coliform* adalah tabung ganda (MPN) dan membrane filter (CFU)

	Tabung ganda	Filter Membrane
Satuan	MPN/100ml	CFU/100ml
Lama pengujian	4-7 hari	24 jam
Laboratorium	Safety Laboratorium dengan alat lab. Mikrobiologi	
Range pengujian	Tergantung pengenceran yang dilakukan	Rendah, <1000CFU/100ml
Expert personality	✓	✓
Flexibility	✗	✗

Kedua metode harus dilakukan di safety laboratorium

Syarat Pengujian *E.Coli* secara konvensional



Ruangan Mikrobiologi



Peralatan Mikrobiologi



Tim Analisis Mikrobiologi

Beberapa syarat laboratorium, SDM yang kompeten dan waktu pengujian yang relatif lama pada metode pengujian *E.Coli* dan *Coliform* secara konvensional masih menjadi kendala beberapa instansi untuk melakukan pengujian *E.Coli* dan *Coliform*.

## SOLUSI PENGUJIAN *E.Coli* dan *Coliform*

**Tecta-PDS** melakukan pengujian secara **cepat (mulai dari 2 jam -18 jam)** dan **mudah (otomatis)**, serta memiliki akurasi yang tinggi (**< 0 cfu/100ml**), dapat menjadi solusi dalam permasalahan pengujian mikroorganisme secara konvensional



Tidak memerlukan ruang mikrobiologi khusus



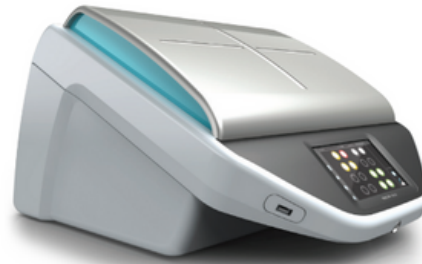
Tidak memerlukan peralatan mikrobiologi khusus



Pengujian yang cepat 2-18 jam

The TECTA™ B16 is the only automated system approved by the U.S. Environmental Protection Agency (EPA) for testing drinking water.

- Easy to use with quick, reliable results
- Fastest *E. coli* and Total Coliform test available
- Single-use, on-site tests using water samples anywhere, at any time of day
- Simple operation that does not require specialized personnel
- No sample preparation or visual interpretation of results required
- Provides continuous monitoring and automated interpretation
- Saves money by reducing operational costs and eliminating the need to ship samples
- Communicates results wirelessly to computers, tablets and smartphones



## When it comes to testing for water safety, nothing beats TECTA™.

The TECTA™ B16 is a fully automated microbiology system providing *E. coli* and Total Coliform results in 2 – 18 hours. It is unparalleled for testing drinking water, managing wastewater and conducting environmental monitoring.

Easy to operate, the TECTA™ B16 delivers quick, reliable and accurate, laboratory-grade results anywhere, anytime.

TECTA™ technology saves lives by providing immediate notification and early warning of positive sample results by e-mail, as soon as they occur.

**Find out why the TECTA™ B16 is now being used in more than 30 countries worldwide.**

## HOW IT WORKS

A self-contained bench top device that houses 16 incubation chambers, the TECTA™ B16 uses the directed enzyme-substrate method combined with a patented Polymer Partition technology and spectrometer to actively read and interpret test results. Receive positive results within as little as two hours and negative within eighteen directly to your computer, tablet or smartphone.

3 SIMPLE STEPS :

- Just add water – no dilutions required
- Load cartridge into TECTATM B16
- Press start



## WHY TECTA



### SAVE LIVES

In the event of water contamination, every second counts. TECTA™ delivers results FAST, to anyone, anywhere, anytime.



### IMPROVE WATER QUALITY

Knowledge is power; quick, accurate results help improve all aspects of running a safe and successful operation.



### LOWER COSTS

Significantly reduce operational costs and free up technicians to perform higher revenue generating tasks. Plus, eliminate the need to ship samples and save!



### BRAND PROTECTION

Not knowing the quality of your water can be devastating to everyone, especially your operation.

## SUCCESES STORY

Tecta PDS merupakan alat yang sudah cukup dikenal pada kanca international dan sudah berhasil digunakan pada beberapa pengujian air dan mendapatkan hasil yang sangat baik. Beberapa diantaranya, Tecta sudah berhasil melakukan analisis pada ;

- Pengujian air tanah di Thailand , pengujian air tanah ini meliputi analisis kualitas air fisik, kimia
- Pada *Société des établissements de plein air du Québec (SÉPAQ)* Tecta digunakan untuk mengelola dan mengembangkan ruang publik bersama dengan fasilitas pariwisata daerah dan Tecta telah berhasil melakukan lebih dari 5.000 tes air per tahun, 200 jaringan distribusi air, 49 perusahaan, 24 taman provinsi dan 10 tempat wisata.
- TECTA™ berhasil menganalisis cemaran bakteri *E.Coli*, *Coliform* dan *Total Coliform* pada air yang akan digunakan untuk kegiatan perlombaan pada *World Triathlon Tokyo 2020 Olympics & Paralympics Test Event* , serta pada air di penginapan para atlet peserta *World Triathlon Tokyo 2020 Olympics & Paralympics*.
- Di Negara Singapura Tecta PDS telah berhasil digunakan untuk menganalisis air minum dalam kemasan secara akurat dan cepat, berkisar pada 2 - 18 jam dan uniknya ini dilakukan dalam *PUB Mobile Lab Application* sehingga sampel tidak perlu dibawa masuk ke laboratorium, melainkan alat Tecta PDS yang mudah untuk diaplikasikan pada mobile Lab.
- Di Negara Indonesia pengoperasian sistem TECTA™ digunakan pada Proyek Water Bank yang terletak di distrik Terban di pulau Jawa di Indonesia. Sebuah kawasan padat penduduk, Terban terletak kurang lebih satu kilometer dari kawasan pusat bisnis kota Yogyakarta. Sebagian besar penduduk Terban secara ekonomi kurang mampu dengan rata-rata pendapatan 50.000 per hari. Proyek ini dapat menghasilkan air bersih sebanyak 400 liter perhari untuk mencukupi kebutuhan warga Terban.

# SUCCESS STORY



### Benefits Detected - Fast Accurate Results in 2-18 Hours

The benefits of using TECTA™ as part of a daily testing regime are SPEED, ACCURACY, and AUTOMATION, including:

- U.S. EPA approved method
- Laboratory-grade results
- Immediate email notification of results upon detection
- Completely automated test procedure
- Automated results report
- Fast detection time
- Extremely sensitive at lower concentrations

### Success Detected

PUB has received SAC Single accreditation of the TECTA™ unit within their mobile lab. This means they are actually running accredited drinking water compliance tests for E. coli bacteria while driving down the road. Once the team is dispatched, samples can be collected on site and be tested in the TECTA™ unit in the mobile lab. Once all the samples for the day are collected and running in the TECTA™, the mobile lab returns to the central station where they are able to plug in the charging cable to a power source to charge up the Li battery.



Canada's TECTA-PDS Selected As Open-Water Testing Provider For The Tokyo 2021 Olympic Games

[Read More...](#)



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- Completely automated test procedure
- Automated results report
- Fast detection time
- Extremely sensitive at lower concentrations
- Accurate digital results vs. other testing subject to bias of visual results

### Success Detected

Tamworth is host to the Tamworth Country Music Festival (TCMF). Forty-five years young, the TCMF is a leading tourism event for NSW and internationally recognized as one of the top 10 festivals in the world and the largest country music festival in the southern hemisphere. Contributing in excess of \$5m to the local economy, it attracts a staggering 50,000 people. Essentially the population of Tamworth doubles for the ten days of the festival. Please visit [tcmf.com.au](http://tcmf.com.au) for further information on this major event. The TECTA™ B16 has enabled further security to microbiological response times during this massive increase in population to the city of Tamworth.



Patrick Wolfe • Oct 15, 2019 • 4 min read

## TECTA-PDS partners with International Triathlon Union (ITU) for fast and reliable water quality test

Press release

Kingston, Ontario – October 15, 2019

ITU is pleased to announce that it has partnered with the company TECTA-PDS for delivering fast and reliable microbiological water quality tests in ITU sanctioned events. This portable laboratory, already implemented in the 2019 ITU World Triathlon Olympic Qualification Event in Tokyo, allows the ITU staff to obtain results of E-Coli and Enterococci bacteria in the body of water tested in less than 12 hours.

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