



Automatic Colony Counter

LB-10CC

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1. Software Operating Guide

1.1 Software login and authorization

Click the icon, and the software pops up the login interface. The username contains four options: operator, reviewer, administrator and System. The default password for the operator is **000000**; the default password for the reviewer is **111111**; the default password for the administrator is **222222**; and the default password for the System is **333333**. If you select different identities to log in to the software, the operation authorities scope will differ. The main authorization and functions of each login identity are as follows.

1.1.1 System (top level)

Responsible for creating and managing the accounts and login passwords of all operators and reviewers. Ensure account segregation and data segregation between operators and between operators and reviewers.

1.1.2 Data administrator (senior level)

Responsible for file management of all test data and computer database management. Archive all the test reports that have passed the review, or back up and export the original images and test data, thus ensuring the integrity and security of the data.

1.1.3 Operator

Responsible for measuring and correcting the bacteriostatic ring, forming an electronic report, submitting it for review, and printing the report of the document that has passed the review.

1.1.4 Reviewer

Responsible for reviewing the test report submitted by the operator. Checking the data input and processing process but have no right to modify; permanently archiving the "Review passed" reports to ensure the originality and authenticity of the data.

After logging in to the software with different identities, please refer to the following table for specific software operation authorities.

S. No	Authorization	System	Administrator	Reviewer	Operator
1	Add user	√	×	×	×
2	User query	√	×	×	×
3	Audit track	√	×	×	×
4	Data storage	×	√	×	×
5	Data back-up	×	√	×	×
6	Data review	×	×	√	×
7	Export as pdf	×	×	×	√
8	Export as excel	×	×	×	√
9	Function operations	×	×	×	√

1.2 Quick Login



Log in as an operator with the default password of **00000** to enter the software. Click  to open the camera, and the main interface will display the preview interface of the sample in the lightbox, indicating that the instrument camera is successfully connected.



Figure-1

1.3 Light source selection and photo taking

According to the characteristics of the sample, select to switch the upper light source, lower light source or ultraviolet light, adjust the appropriate light intensity (this operation is carried out on the instrument panel), and then click  to take photos, to complete the photo taking of the sample.

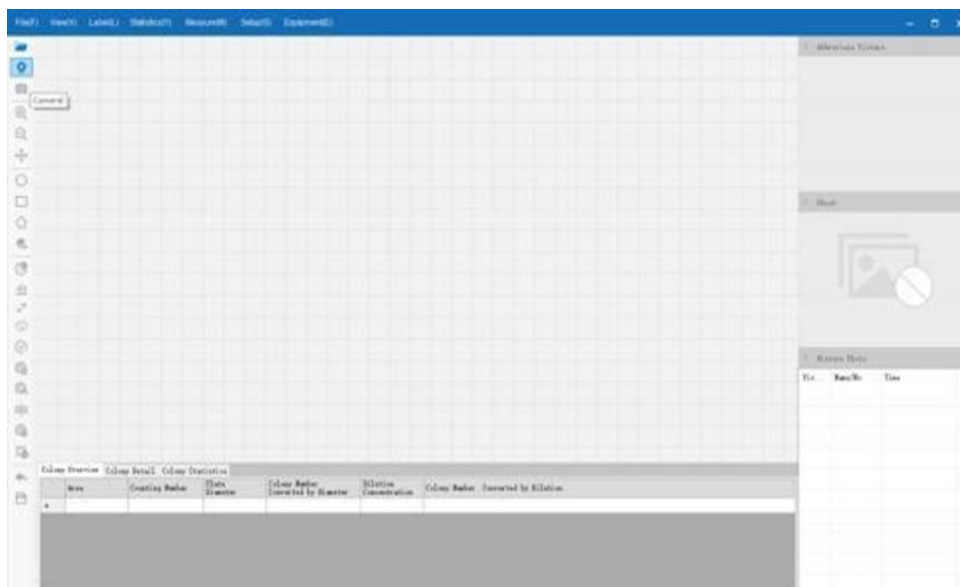



Figure-2

1.4 Quick counting, saving and report generation

A 90mm culture dish is taken as an example to briefly describe the process of counting and analysis by the software.

1.4.1 Select the counting area

Left-click the circle  on the left side of the software to select the counting area, move the mouse to the image that has been taken, left-click the edge of the 90mm culture dish, and pull the mouse until the red circle box encircles all colonies in the culture dish. See the figure below:

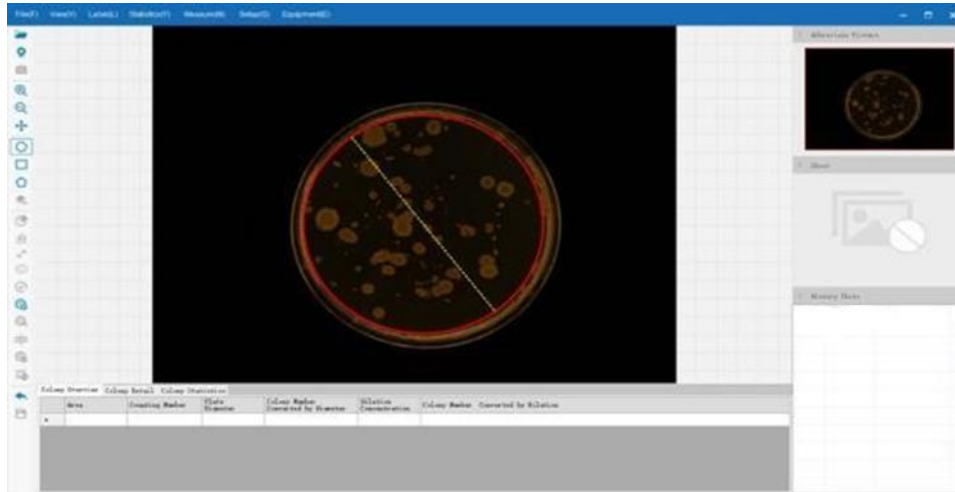



Figure-3

1.4.2 Sensitivity adjustment

Click  for quick statistics to complete quick counting of the selected area. Click "Sensitivity adjustment" on the left to achieve a sensitivity adjustment of values 0-100 until a satisfactory statistical result is obtained. See the figure below:

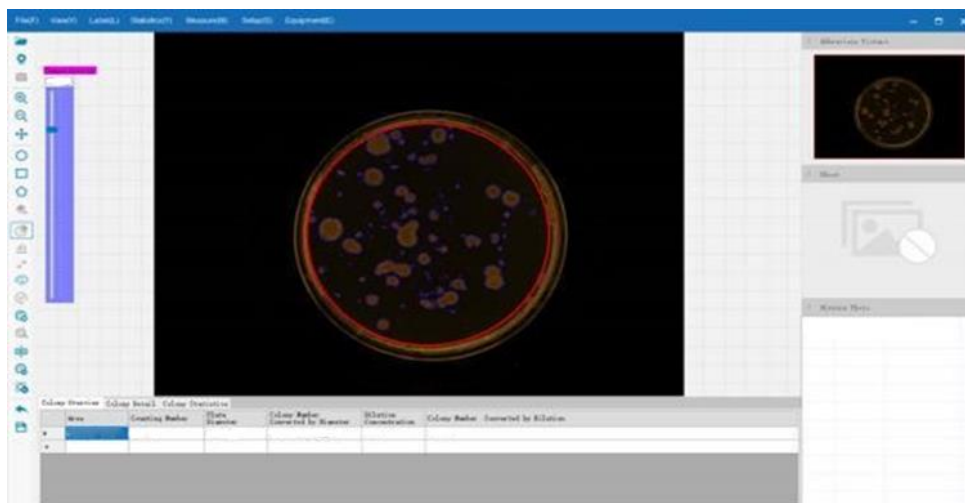


Figure-4

1.4.3 Data Save

Click "**File**", and select "**Save**" from the drop-down menu, and the Data Save window will pop up. Enter the sample name, sample number, inoculation type, inoculation volume, etc., and click "**OK**".

Figure-5

1.4.4 Save the File

Click "**Save**" or click "**File**", and select "**Query**" from the drop-down menu, and the data query window will pop up. Select the year when the data is saved in the upper left corner, then click the **date** when the data is saved, and all the data completed on that day will pop up.

1.4.5 Submit the data for review

Tick the data in the check box, and then click the first option in the lower right corner to submit the data for review, so that the data will be submitted to the reviewer for further review. See the figure below:

Figure-6

1.4.6 Reviewing data after login in

After logging in to the software with a default password of "111111", the reviewer clicks the "Query" button under the first "File" directory in the upper left corner to enter the database window selects the data to be reviewed and clicks "Review passed" to complete the review and submit it for the next review. See the figure below:

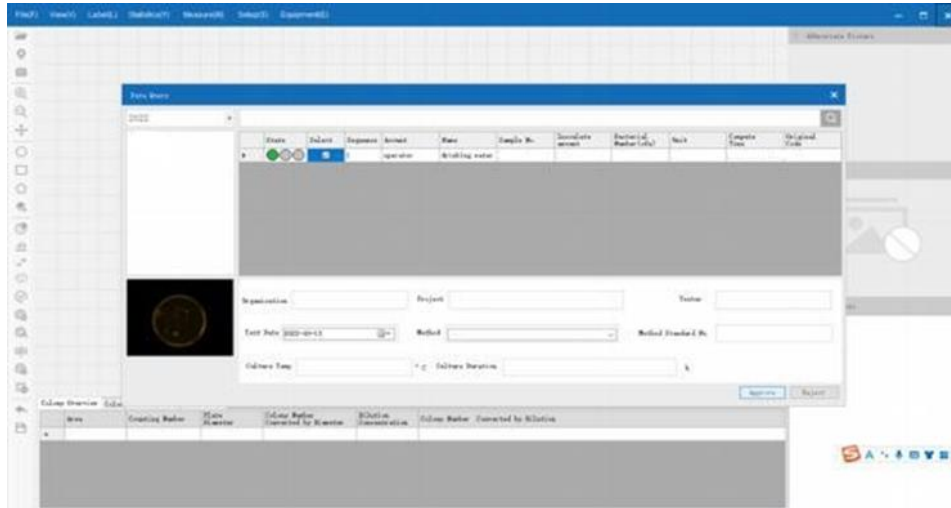


Figure-7

1.4.7 Archiving and Backing Up Reviewed Data

After logging in to the software with a default password of "222222", the data administrator clicks the "Query" button under the first "File" directory in the upper left corner to enter the database window, selects the data to be processed, and clicks "One click archive" to archive all the data that has passed the review, then "three green" is displayed in the state bar simultaneously. After the data is archived, no one is allowed to tamper with or delete the original data. Click "One click backup" to export all the archived historical data in Excel format. See the figure below:

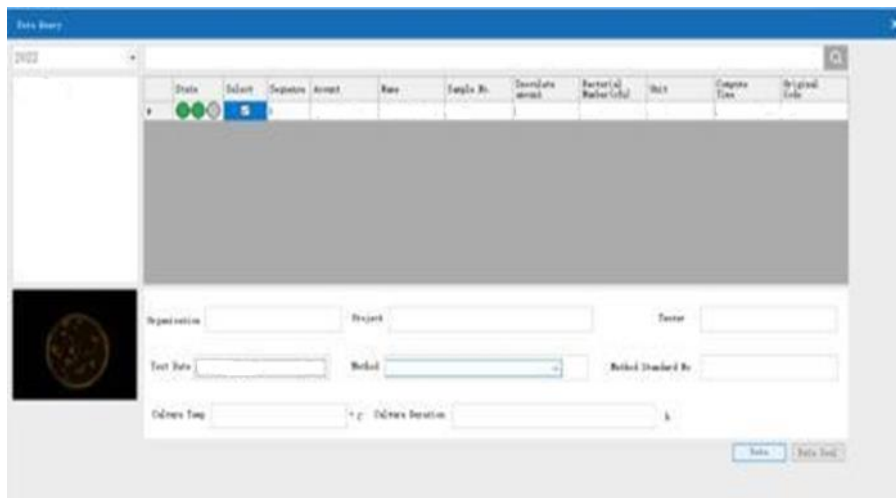


Figure-8

1.4.8 Export

Log in to the software again as an operator, and enter information such as organization name, project name, tester, test date, method name, method standard No., culture temperature and culture duration at the bottom of the Data Query window. Click **“Export”** to save the test report as a pdf file.

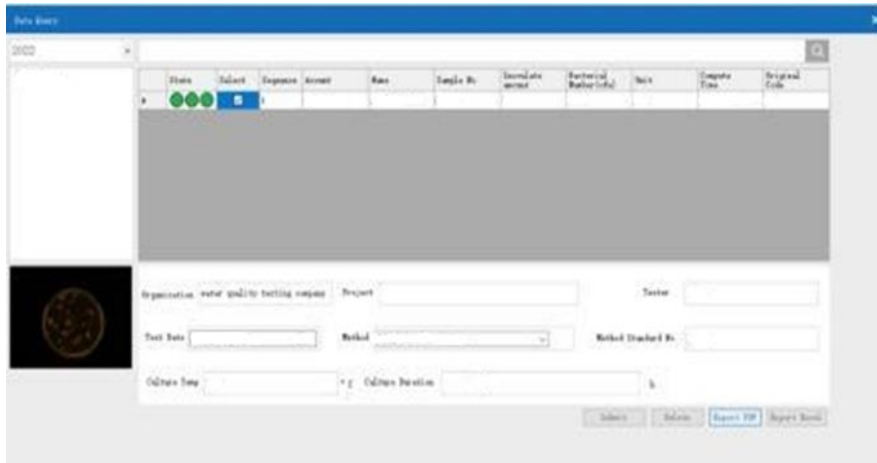


Figure-9

Automatic Colony Count Report

Inspect Time: 2022-10-13

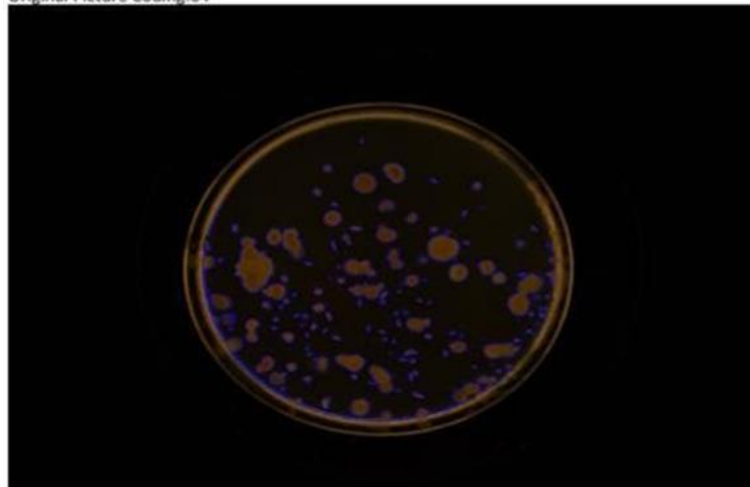
One, Inspection Information

Company Name:
 Project Name: drinking water test
 Method Name: testing NO.1
 Method Standard No.:
 Culture Temperature: 36 (°C)
 Culture Duration: 48 (h)
 Inspector:

Two, Analysis Result

State	Sequence Number	Account	Sample Name	Sample Number	Inoculation Amount	Unit	Colony Count (cfu)	Process Time	Original Picture Coding
●●●●	1	operator	drinking water	20220187	1	mL	153	2022/10/13 11:21:17	04

Original Picture Coding:04



Operator:

Reviewer:

Administrator:

Figure-10

1.5 Detailed description of other functions of the software

1.5.1 Image invocation

Click **"File"**  to open the folder where the image is saved.

Note: The image scale should be 4:3, and other scales may stretch or distort the image).

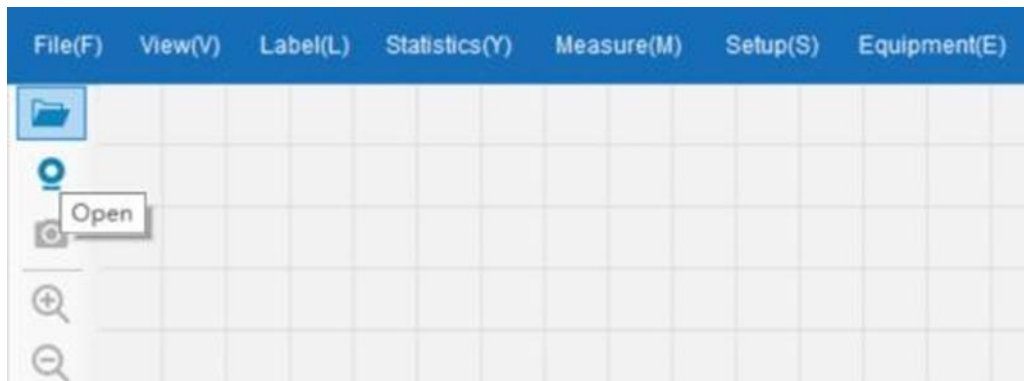





Figure-11

1.5.2 Image zooming in & out and moving

Click **"Zoom in"** , then put the mouse on the image and click it to zoom in the image; click **"Zoom out"** , then put the mouse on the image and click it to zoom out the image; click **"Move image"** , then put the mouse on the image and drag it to achieve plane movement of the image.

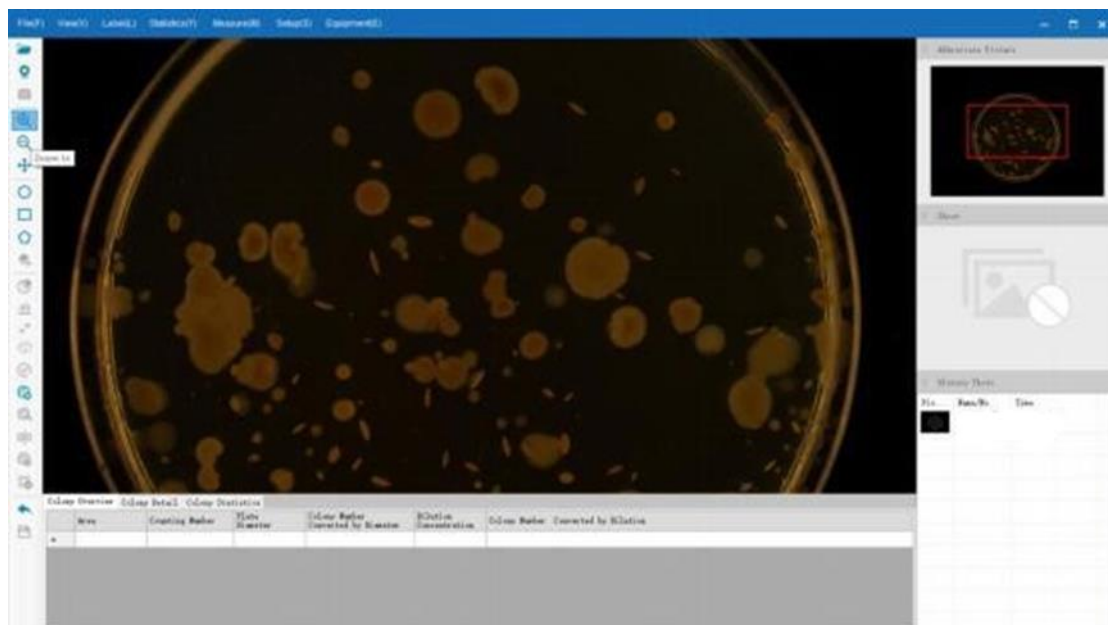


Figure-12

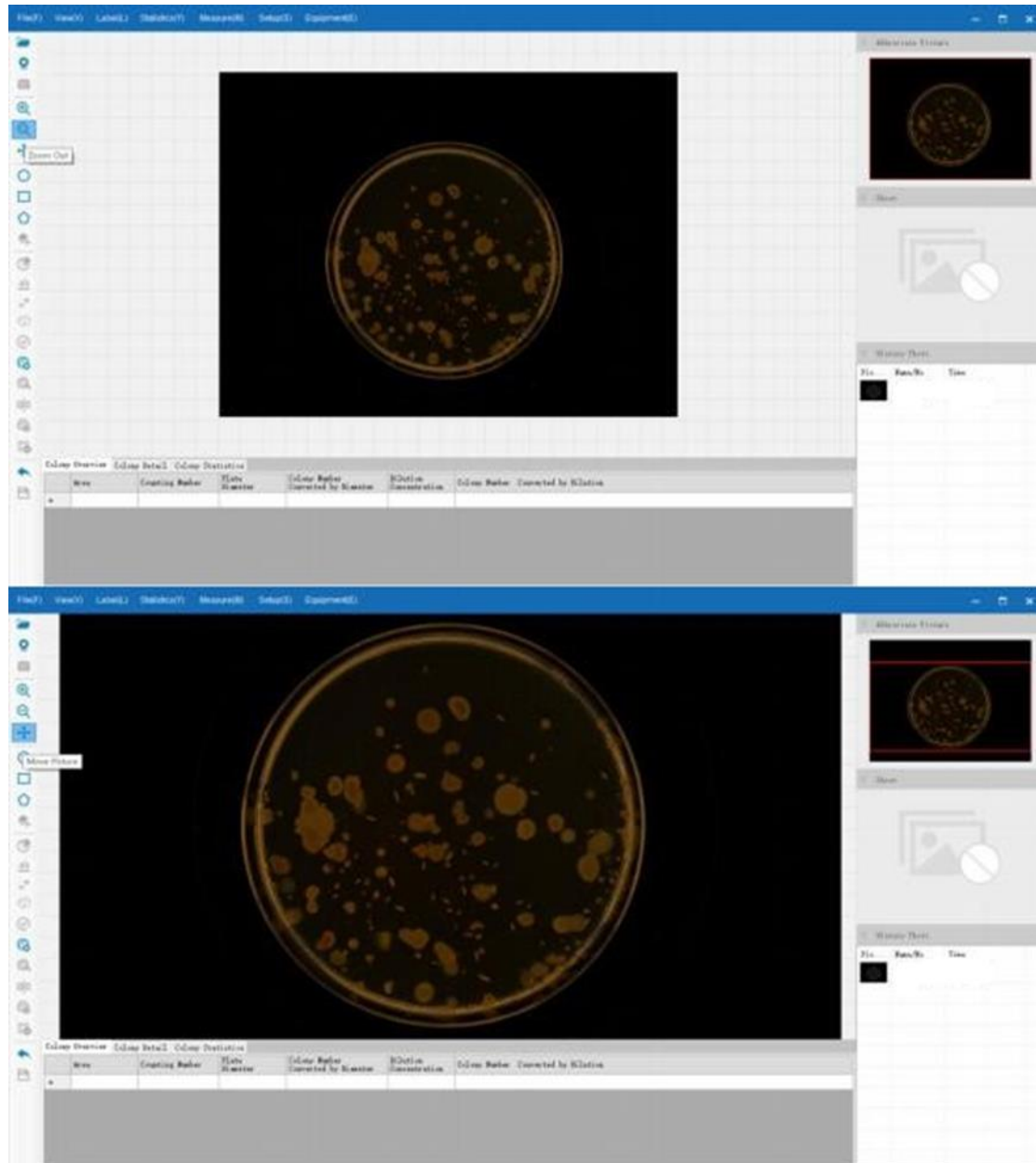





Figure-13

1.5.3 Selection of counting area

Click the circle  to select the circular counting area. Move the mouse onto the image, press the left button and drag it to complete area selection; click the rectangle  to select the rectangular counting area. Move the mouse onto the image, press the left button and drag it to complete area selection; click the polygon  to select the polygonal counting area. Move the mouse onto the image and click the left button to complete the area selection.

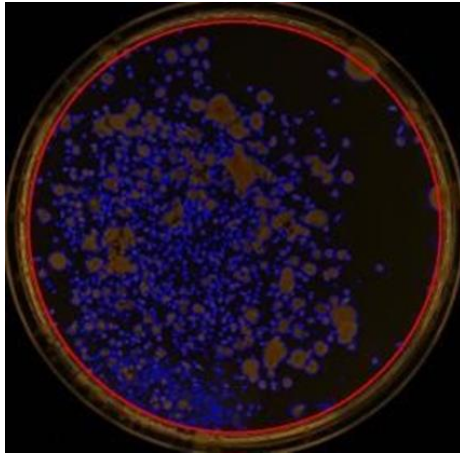


Figure-14 Selection of circular area

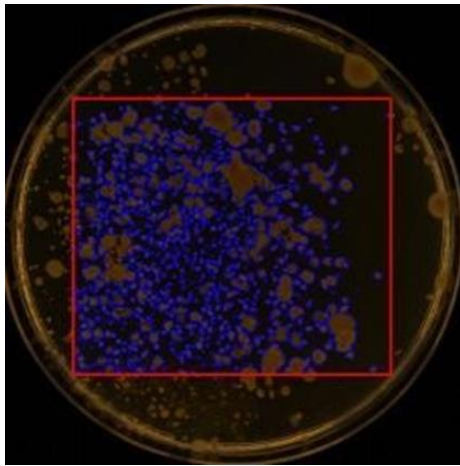


Figure-15 Selection of square area

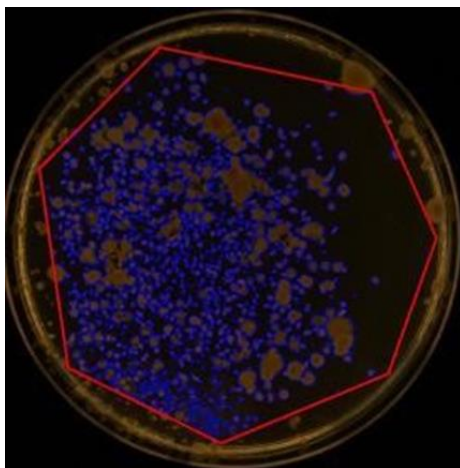


Figure-16 Selection of polygon area

1.5.6 Adhesion segmentation

Click "**Manual adhesion segmentation**"  , and draw a line at the colony adhesion with the left button, so that 1 colony can be cut into 2 colonies.

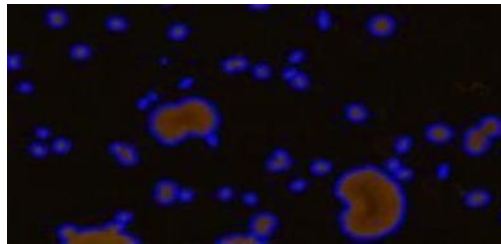


Figure-19 Before adhesion segmentation

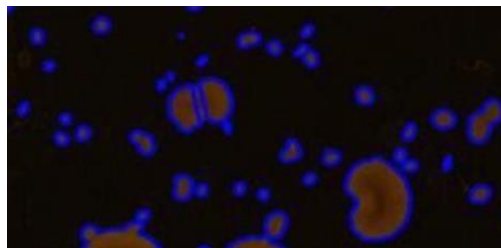

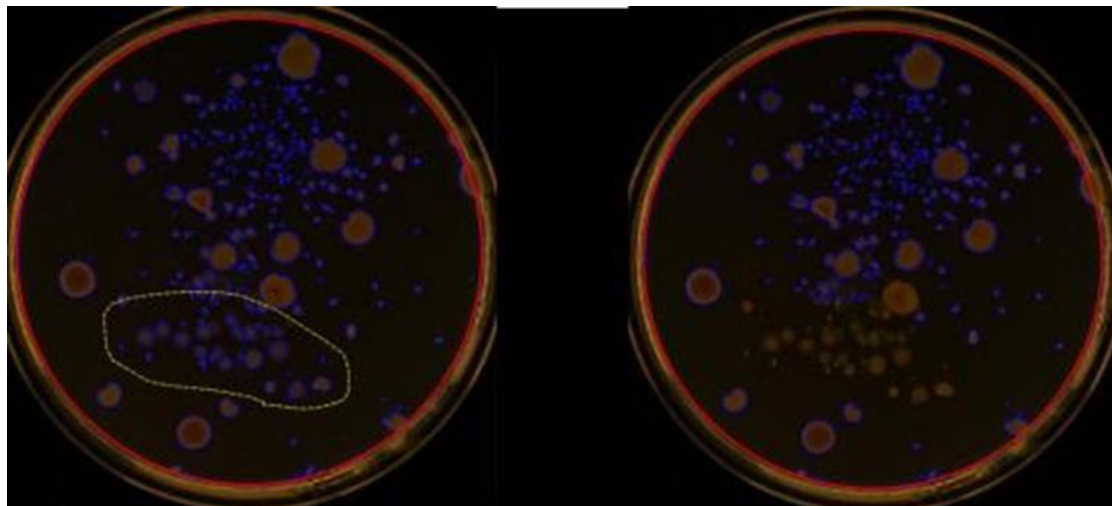


Figure-20 After adhesion segmentation

1.5.7 Area deletion

Click "**Area deletion**"  , draw a circle for the area to be deleted with the left button, and select it to be deleted to complete area deletion.



Before area deletion


After area deletion

Figure-21

1.5.8 Original image resolution

Click "**Original image restoration**"  to remove the statistical result and restore it to the original image state.

1.5.9 Data saving

Click "**Save**"  or click "**File**", select "**Query**" from the drop-down menu, and the data query window will popup. Select the year when the data is saved in the upper left corner, then click the date when the data is saved, and all the data completed on that day will popup.

1.5.10 Image labelling

Click "**Labeling**", select "**Input text**" from the drop-down menu, left-click on the image and input the content to be labelled, then click "**Enter**" to complete the labeling, and click "**Labeling rollback**" to return to the previous step.

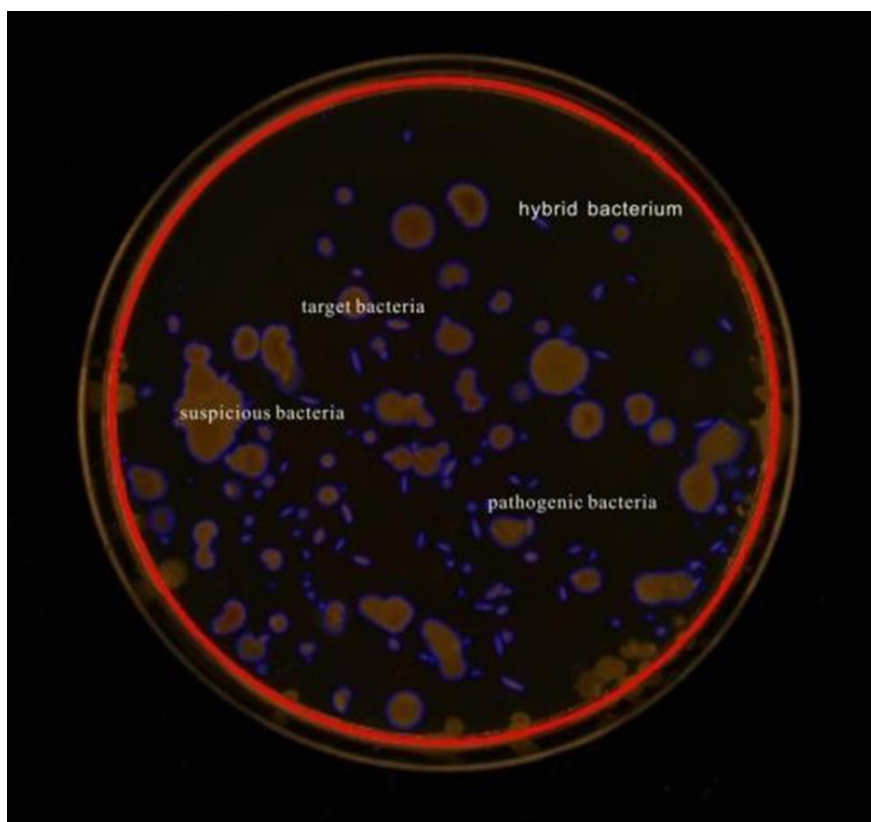


Figure-22

1.5.11 Straight line measurement

Click "**Straight line measurement**" and left-click 2 points on the image, and the measurement information dialog box will pop up, which contains the number, type and measurement result. The measurement result is the straight-line distance between the 2 points, in millimeter.

1.5.12 Angle measurement

Click "**Angle measurement**" and left-click 3 points on the image, and the measurement information dialog box will pop up, which contains the number, type and measurement result. The measurement result is the angle formed by the 3 points, in degrees.

1.5.13 Rectangle measurement

Click "**Rectangle measurement**", left click and drag 2 points on the image, and the measurement information dialog box will popup, which contains the number, type and measurement result. The measurement result is the area of the rectangle formed by the 2 points, in square millimeter.

1.5.14 Circle measurement

Click "**Circle measurement**", left click and drag 2 points on the image, and the measurement information dialog box will pop up, which contains the number, type and measurement result. The measurement result is the area of the circle formed, in square millimeter.

1.5.15 General settings

Click "**Settings**", select "**General settings**" from the drop-down menu, and the "**General settings**" dialog box will pop up. Set "**Add colony manually**" (small, medium and large colony), and set ROI and color of colony contour. Then select "**Apply**" for confirmation and select "**Restore default settings**" to restore factory settings.



Figure-23

1.5.16 Advanced settings

Click "**Settings**", select "**Advanced settings**" from the drop-down menu, and the "**Advanced settings**" dialog box will popup. Set 8 colony parameters, including maximum colony diameter, block size, pixel ratio, sample dilution concentration, etc.

Note: Generally, it is not recommended for customers to make changes by themselves.



Figure-24

1.5.17 Instrument Maintenance

Click "**Instrument maintenance**" and select "**Calibration**" from the pull-down menu to calibrate the measurement accuracy of the instrument.

Note: Before delivery of the product, the engineer has already calibrated the instrument. Generally, it is not recommended for customers to calibrate by themselves.

1.5.18 Add account

After logging in to the software as the System, click "**User management**", select "**Add user**" from the drop-down menu, and the "**Add user**" dialog box will pop up. Then set the account, password and password again to create a new user of the software.

The screenshot shows a dialog box titled "Add User" with a close button (X) in the top right corner. It contains four input fields: "Account", "Password", "Password again", and "User Type" (a dropdown menu). At the bottom of the dialog are two buttons: "OK" and "Cancel".

Figure-25

1.5.19 Account management

After logging in to the software as the System, click "**User management**", select "**User query**" from the drop-down menu, and the "**User query**" dialog box will pop up. Then you can delete, edit and add the accounts.

The screenshot shows a dialog box titled "User Query" with a close button (X) in the top right corner. It contains a table with the following data:

No.	Account	Password
1	reviewer	111111
2	administrator	222222
3	operator	000000
*		

Figure-26

1.5.20 Audit track

After logging in to the software as the System, click **"User management"**, select **"Audit track"** from the drop-down menu, and the **"Audit track"** dialog box will popup. Then you can query the date, operator, operating type, report name, etc. in the "Audit track" dialog box at will, or export the audit track entries.

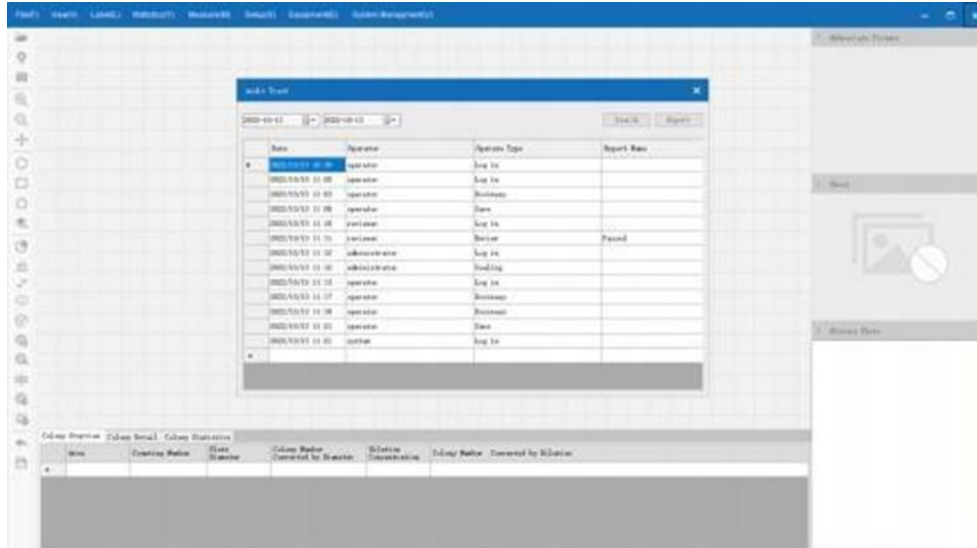
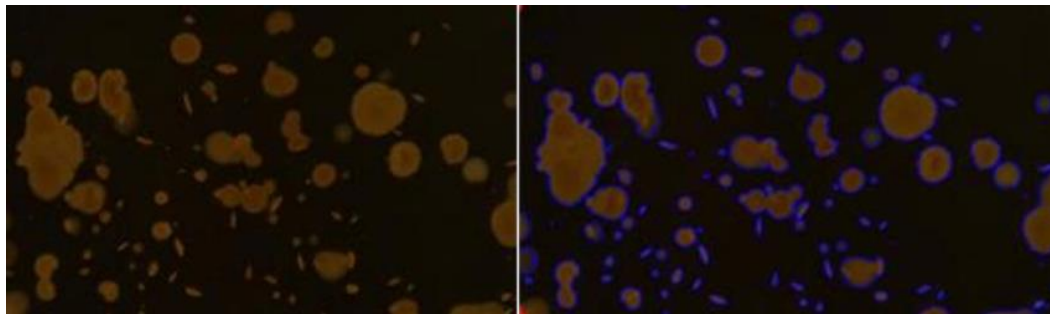


Figure-27

2. Software statistics effect display

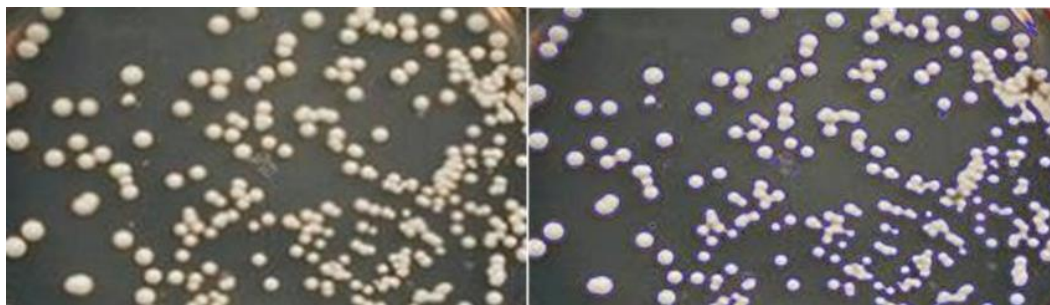
There are multiple built-in algorithms available in the ColonyAnalyse™ software, which will realize the identification and complex statistics of the culture media in different colors and colonies with different characteristics. In addition, it has a sensitivity adjustment button, enabling users to obtain the required statistical effect by adjusting the sensitivity.



Before Statistics

After Statistics

Figure-28



Before statistics

After statistics

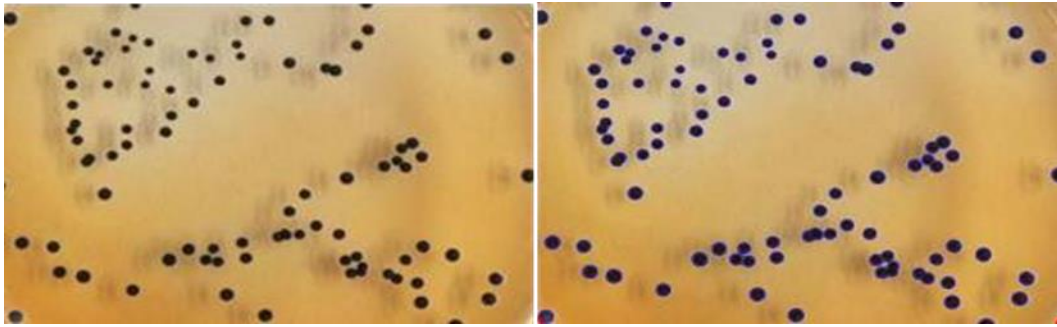
Figure-29



Before statistics

After statistics

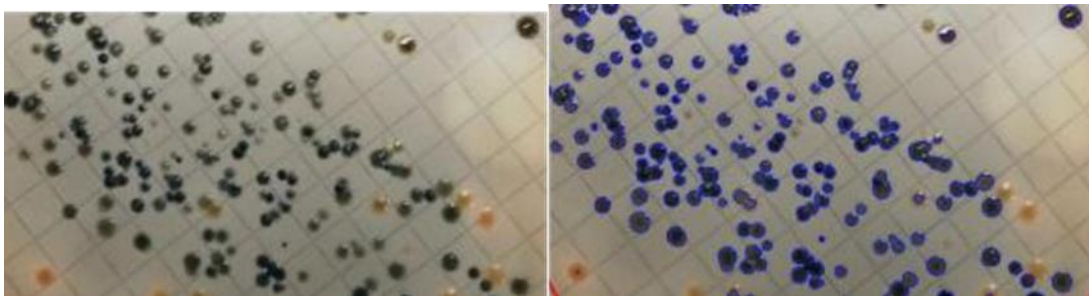
Figure-30



Before statistics

After statistics

Figure-31



Before statistics

After statistics

Figure-32



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