

# Supplemental Material

## **Plaque Size Tool: an automated plaque analysis tool for simplifying and standardising bacteriophage plaque morphology measurements**

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#### SUPPORTING FILES

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**Table S1. ΦX174 Petri dish image characteristics.**

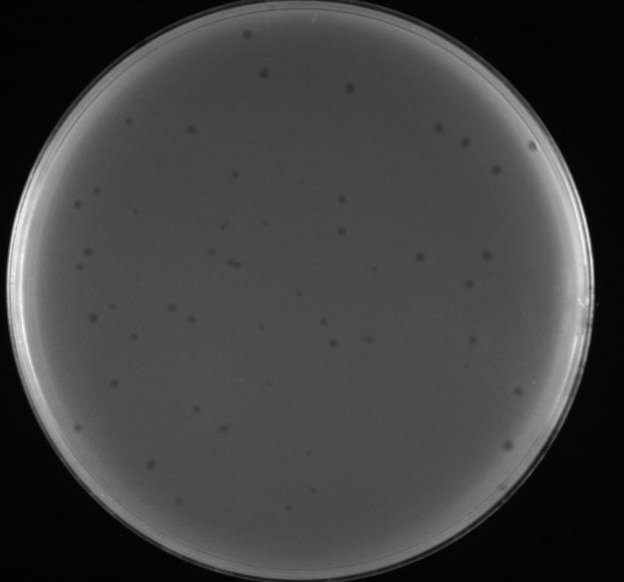
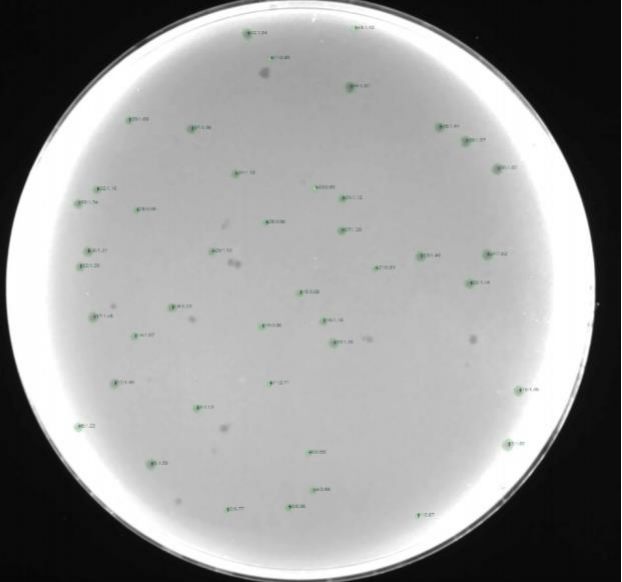
<b>Image name</b>	<b>PST flag</b>	<b>Resolution (DPI)</b>	<b>Image size (pixels × pixels)</b>	<b>Average Plaque Size (mm)</b>	<b>Plaque number (manual count)</b>	<b>Plaque number (PST)</b>	<b>False positive plaques</b>	<b>Incorrect plaques</b>	<b>PST correct plaques (overall)</b>	<b>PST accuracy (%)</b>
Plate_1.tif	small	600	2811 x 2100	1.22±0.27	45	44	3	0	41	91.11
Plate_2.tif	none	600	2811 x 2100	5.17±0.38	17	19	0	4	15	88.24
Plate_3.tif	none	600	2811 x 2100	3.06±0.60	51	51	2	1	48	94.12
Plate_4.tif	none	600	2811 x 2100	3.22±0.36	11	10	0	0	10	90.91
Plate_5.tif	none	600	2811 x 2100	2.93±0.45	57	51	1	0	50	87.72
Plate_6.tif	none	600	2811 x 2100	3.53±1.01	47	48	0	3	45	95.74
Plate_7.tif	none	600	2811 x 2100	2.51±0.35	26	25	0	0	25	96.15
Plate_8.tif	none	300	1606 x 1200	5.14±1.20	19	19	0	0	19	100.00
Plate_9.tif	small	300	1606 x 1200	1.96±0.57	41	45	5	0	40	97.56
Plate_10.tif	none	300	1606 x 1200	5.79±0.90	23	25	1	5	19	82.61
Plate_11.tif	small	300	1606 x 1200	1.25±0.29	53	38	1	2	35	66.04
Plate_12.tif	none	300	1606 x 1200	4.45±0.61	15	12	0	0	12	80.00
Plate_13.tif	small	300	1606 x 1200	1.34±0.33	66	37	3	0	34	51.52
Plate_14.tif	none	300	1606 x 1200	5.85±0.51	17	17	0	5	12	70.59
Plate_15.tif	small	300	1606 x 1200	2.14±0.76	49	36	0	0	36	73.47
Plate_16.tif	small	300	1606 x 1200	2.16±0.72	48	46	1	0	45	93.75
Plate_17.tif	small	300	1606 x 1200	1.99±0.91	16	17	3	0	14	87.50

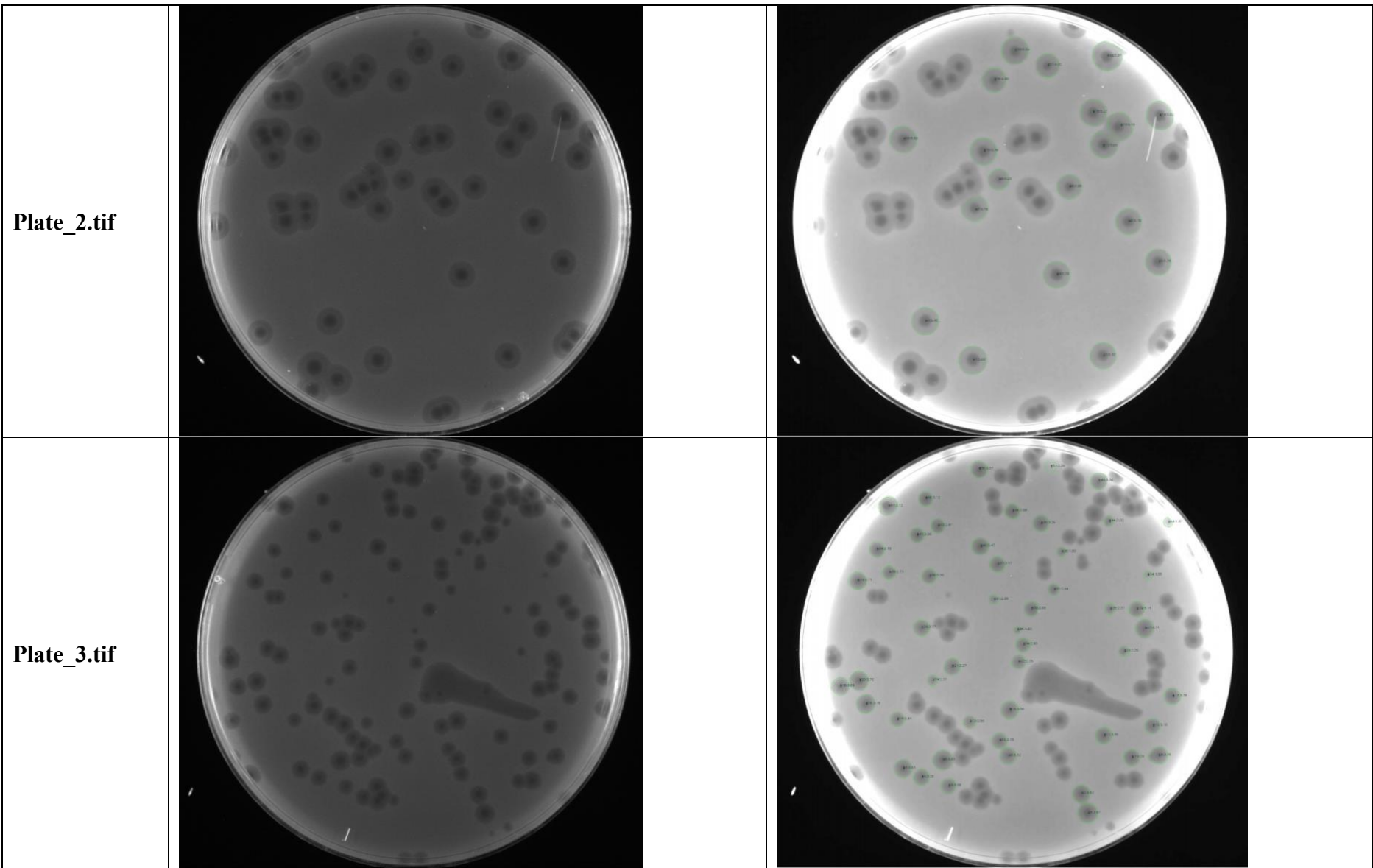
Columns: 'False positive plaques' - additional incorrect objects that were detected on a plate as plaques (bubbles, dark spots and etc.). 'Incorrect plaques' - plaques that were measured inaccurately (merged plaques, a partial selection of a plaque, larger/smaller plaque size). 'PST correct plaques (overall)' - The overall plaque number calculated by PST ('Plaque number (PST)) minus 'False positive plaques' and 'Incorrect plaques'.

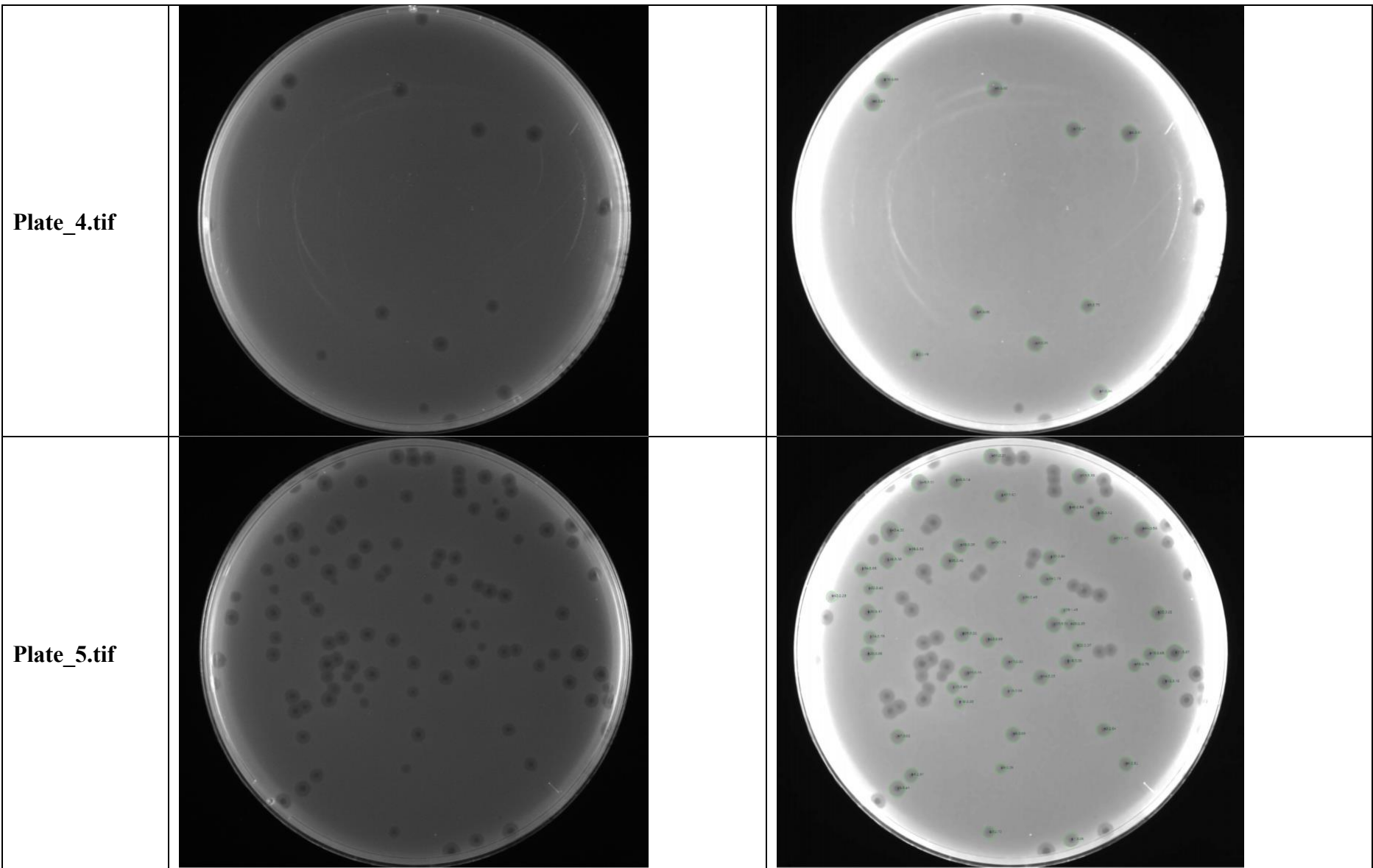
**Table S2. Image characteristics of additional phage plates from Actinobacteriophage database.**

Phage name	File URL	Dimensions	DPI	File Format	Image colour	Device	PST flags	Plaque number (manual count)	Plaque number (PST)	Correctly detected plaques (%)
Mycobacterium phage DS6A	<a href="https://phagesdb.org/media/plaquePics/2001-07-23_DS6A_on_BCG.jpg">https://phagesdb.org/media/plaquePics/2001-07-23_DS6A_on_BCG.jpg</a>	624 × 462	72	JPG	greyscale	unknown	small	25	23	92.00
Streptomyces phage Aaronocolus	<a href="https://phagesdb.org/media/plaquePics/Aaronocolus_Plaque_2.jpg">https://phagesdb.org/media/plaquePics/Aaronocolus_Plaque_2.jpg</a>	1360 × 1024	72	JPG	greyscale	unknown	small	37	31	83.78
Mycobacterium phage Durfee	<a href="https://phagesdb.org/media/plaquePics/Durfee_Plaque.png">https://phagesdb.org/media/plaquePics/Durfee_Plaque.png</a>	413 × 310	150	PNG	greyscale	unknown	small	18	13	72.22
Arthrobacter phage Nitro	<a href="https://phagesdb.org/media/plaquePics/Nitro_Plaque.JPG">https://phagesdb.org/media/plaquePics/Nitro_Plaque.JPG</a>	3024 × 4032	72	JPEG	colour	mobile phone camera	none	10	10	100.00
Arthrobacter phage Rizwana	<a href="https://phagesdb.org/media/plaquePics/Rizwana_Plaque.jpg">https://phagesdb.org/media/plaquePics/Rizwana_Plaque.jpg</a>	2814 × 2825	72	JPG	colour	mobile phone camera	small	22	12	54.55
Mycobacterium phage Thresher	<a href="https://phagesdb.org/media/plaquePics/Thresher_Plaque.jpg">https://phagesdb.org/media/plaquePics/Thresher_Plaque.jpg</a>	1836 × 3264	72	JPG	colour	mobile phone camera	none	13	12	92.31
Streptomyces phage Katalie	<a href="https://phagesdb.org/media/plaquePics/Katalie_Plaque.png">https://phagesdb.org/media/plaquePics/Katalie_Plaque.png</a>	646 × 626	144	PNG	colour	unknown	small	25	22	88.00
Gordonia phage Anaysia	<a href="https://phagesdb.org/media/plaquePics/Anaysia_Plaque_dMih9qg.jpg">https://phagesdb.org/media/plaquePics/Anaysia_Plaque_dMih9qg.jpg</a>	3024 × 3024	72	JPG	colour	mobile phone camera	none	23	22	95.65

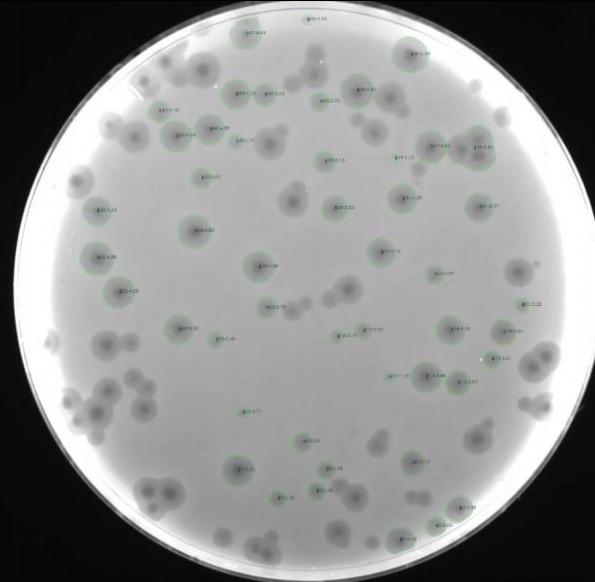
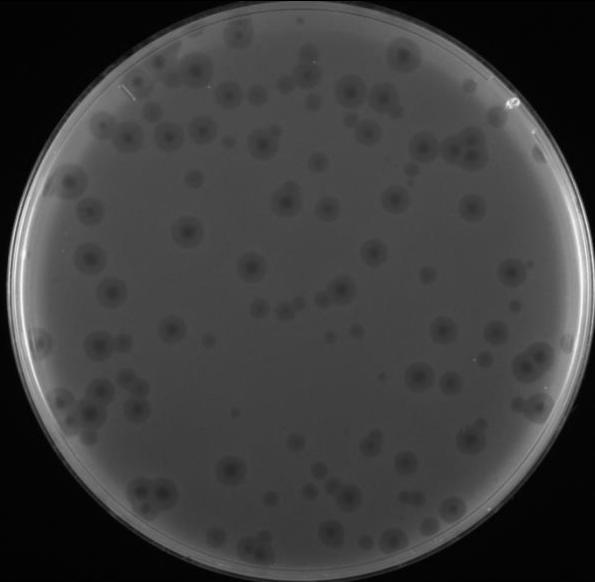
**Table S3. Original and Plaque Size Tool processed  $\Phi$ X174 Petri dish images**

Plate name	Original image (TIFF)	Plaque Size Tool output image
Plate_1.tif		

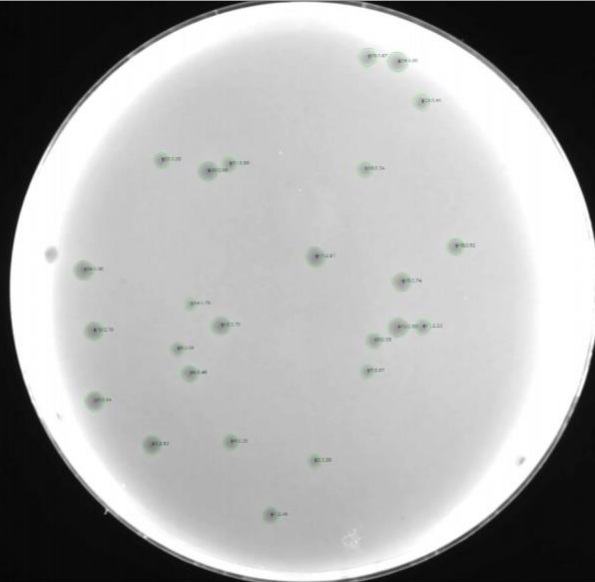
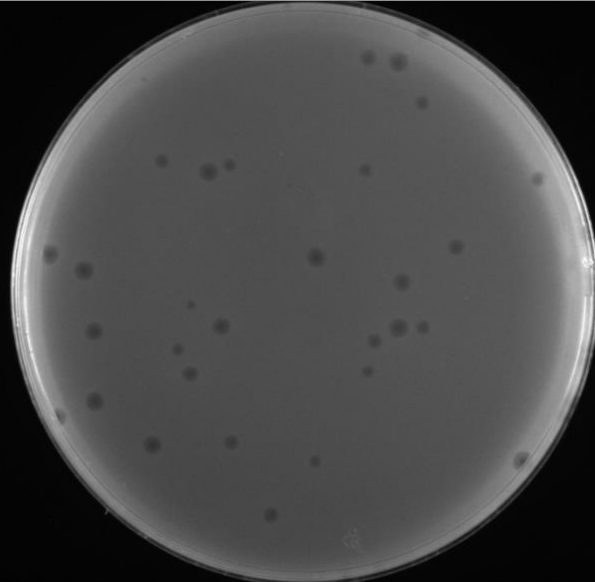




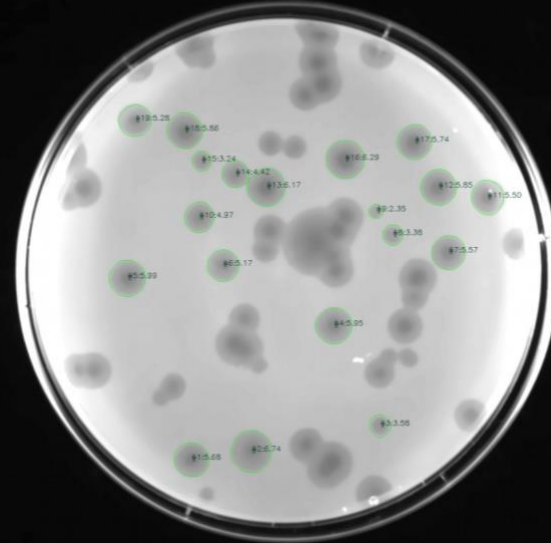
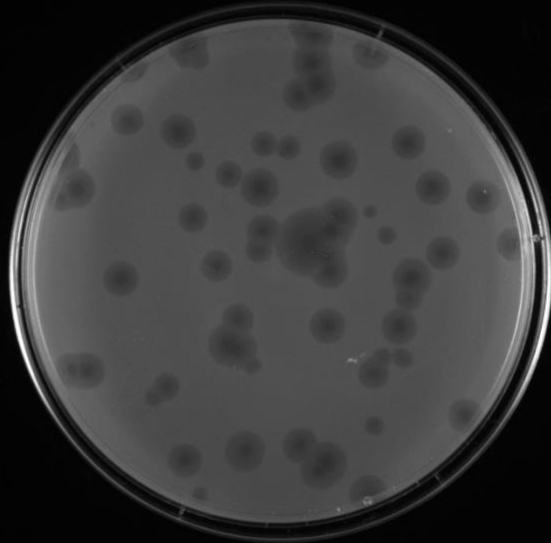
**Plate\_6.tif**



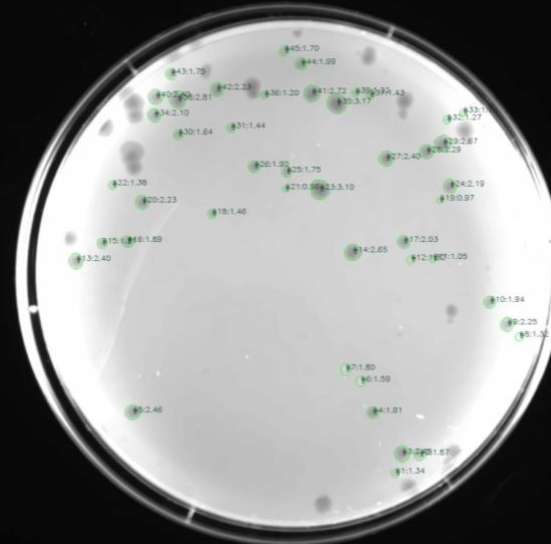
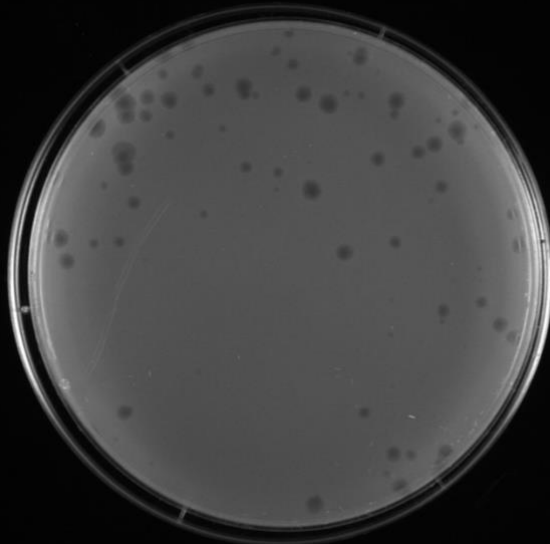
**Plate\_7.tif**



Plate\_8.tif



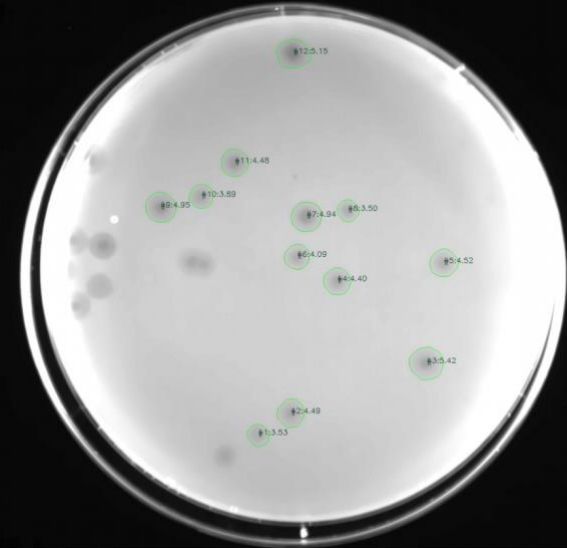
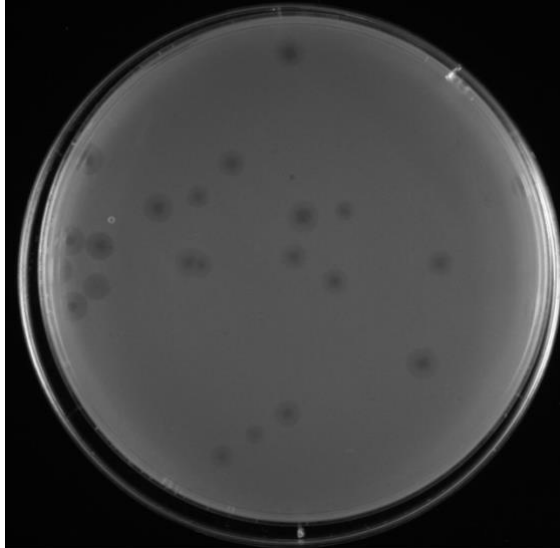
Plate\_9.tif



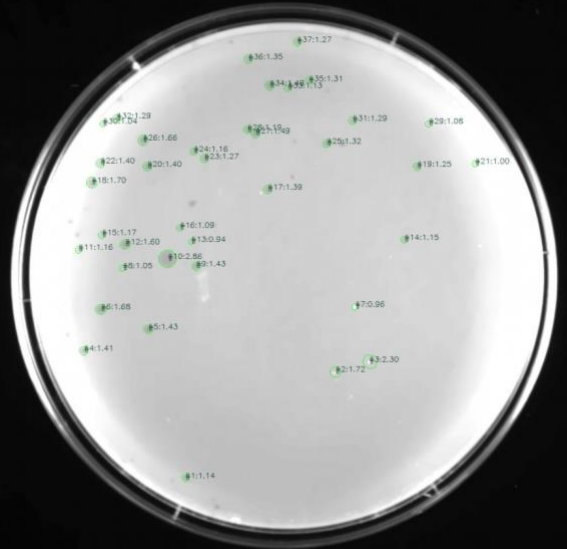
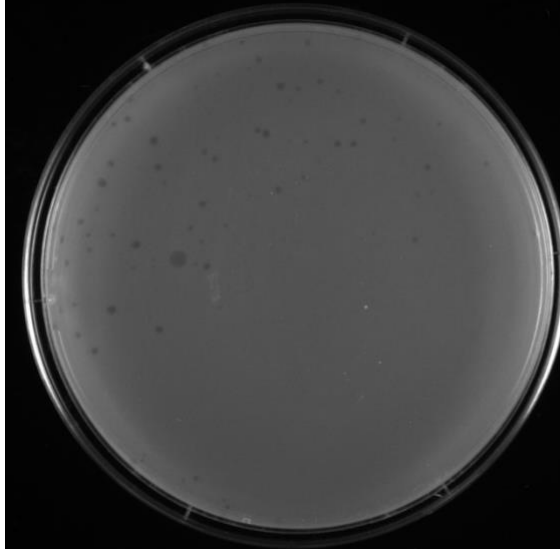




Plate\_12.tif

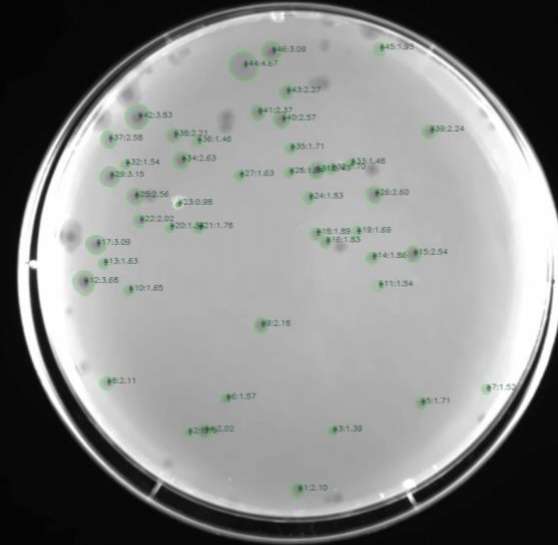
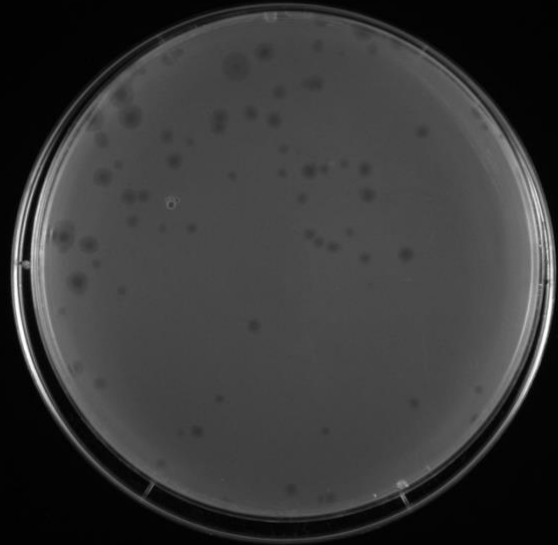


Plate\_13.tif





Plate\_16.tif



Plate\_17.tif

