

SUPPLEMENTARY INFORMATION

Fast Antibiotic Susceptibility Test Integrated Microfluidic Chips for Detection of Carbapenem/Colistin-Resistant Bacteria by a Smartphone-based Analysis

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FIGURE 5 Resistant strain					
	1 ppm	2 ppm	4 ppm	8 ppm	16 ppm
2 hrs	35,7	38,3	36,3	35,8	22,7
Susceptible strain					
	1 ppm	2 ppm	4 ppm	8 ppm	16 ppm
2 hrs	35,7	34,5	22,08	2,4	3,02
FIGURE 6 Resistant strain					
	1 ppm	2 ppm	4 ppm	8 ppm	16 ppm
2 hrs	28,9	28,5	25,3	25,1	15,6
Susceptible strain					
	1 ppm	2 ppm	4 ppm	8 ppm	16 ppm
2 hrs	28,3	26,3	15,6	7,58	7,53
FIGURE 7 Resistant strain					
	1 ppm	2 ppm	4 ppm	8 ppm	16 ppm
2 hrs	29,65	28,65	27,32	26,16	15,19
Susceptible strain					
	1 ppm	2 ppm	4 ppm	8 ppm	16 ppm
2 hrs	28,3	26,3	15,7	10,58	10,53

Fig S1. Delta E values of colorimetric mc-AST.

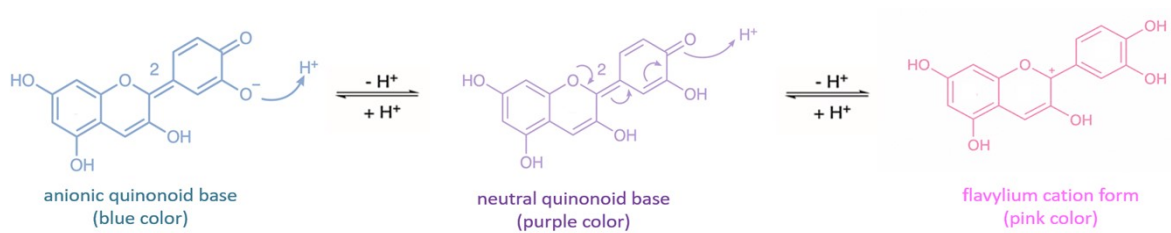


Fig S2. Schematic representation of the changes in the chemical structure and color of the anthocyanin molecule in response to pH changes.^{1,2}

In an alkaline environment, anthocyanin molecules, which are blue-colored anionic quinonoid bases, turn purple when they are protonated in a neutral environment. They then convert to the neutral quinonoid base form. When bacterial growth occurs in the test medium, the pH decreases due to an increase in bacterial AVG. In this acidic environment, the anthocyanin converts to the flavylium cation form and turns pink. This color change makes it possible to visually identify resistant and susceptible bacteria in a simple and effective method.^{1,2}

References

- 1- Trilini, G. C., Bernardo, M. P., Dias, D. S. et al. Intelligent Packaging Systems with Anthocyanin: Influence of Different Polymers and Storage Conditions, *Polymers* **16**, 2886 (2024)
- 2- Celik, C., Can Sezgin, G., Kocabas, U. G., Gursoy, S., Ildiz, N., Tan, W., & Ocsoy, I. Novel anthocyanin-based colorimetric assay for the rapid, sensitive, and quantitative detection of helicobacter pylori. *Analytical chemistry*, **93(15)**, 6246-6253 (2021).