

Applicability of β -Lactamase Entrapped Agarose Discs for removal of doripenem antibiotic: Reusability and Scale-Up Studies

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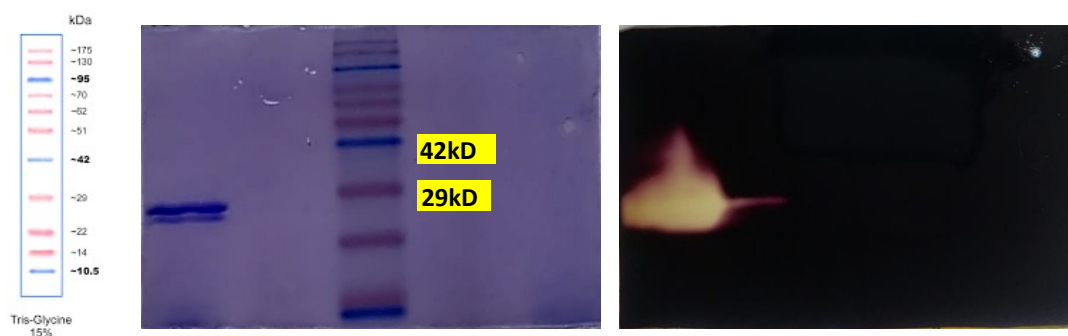


Fig. S1 a) SDS gel electrophoresis of *B. tropicus* EMB20 β -lactamase (lane 1-CFS containing β -lactamase; lane 2-marker)
b) Zymography of β -lactamase using iodometric assay.

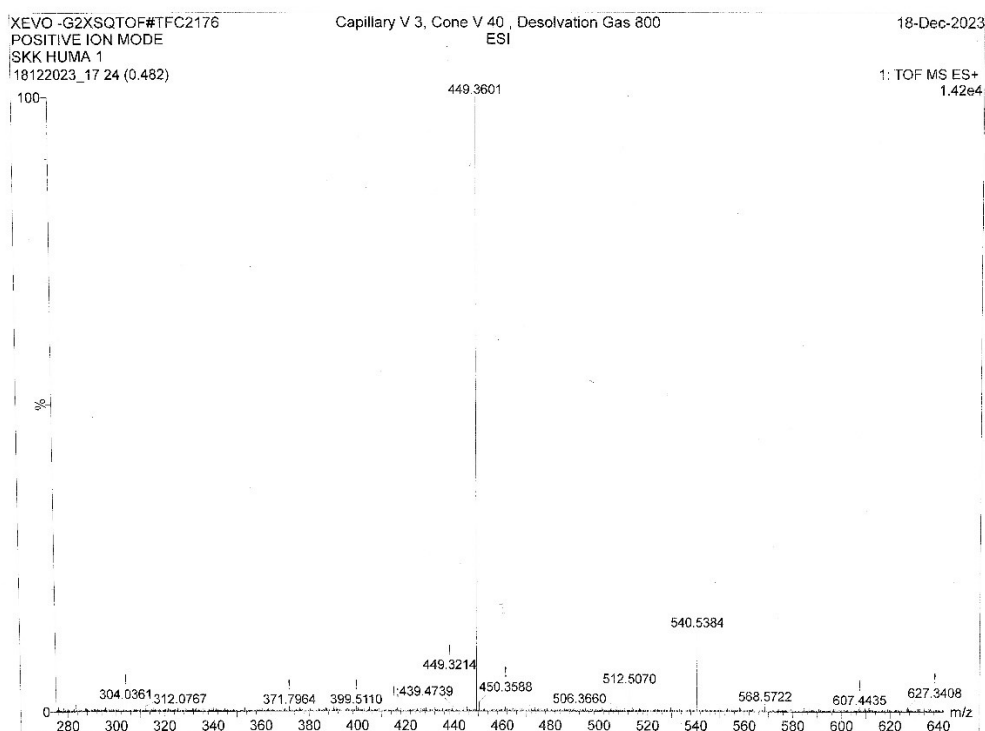


Fig. S2 HRMS spectrum of doripenem hydrolysed products

Table S1- Correlation coefficient (r^2 value), rate constant and half-life value of first and second order kinetics model for degradation of Doripenem, meropenem, amoxicillin, individually and their mixture.

Name of antibiotic	First order			Second order		
	r^2	k_1	$t_{1/2}$ (min)	r^2	k_2	$t_{1/2}$ (min)
Doripenem	0.94	0.230	3.11	0.88	0.01	0.33
Meropenem	0.96	0.090	7.7	0.89	0.004	0.83
Amoxicillin	0.93	0.037	18.7	0.97	0.0007	4.7
Mixture	0.88	0.076	9.11	0.90	0.001	0.322

Table S2- Time course removal of doripenem by β -lactamase entrapped in agarose gel matrix.

ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Individual (between rows)	11348	1	11348	F (1, 3) = 88.70	P=0.0025
Residual (random)	383.8	3	127.9		
Total	12439	7			

Table S3– Reusability of lactamase entrapped in Agarose discs

Shapiro-Wilk test	
W	0.7646
P value	0.0404
Passed normality test (alpha=0.05)?	No
P value summary	*

Table S4- Remediation of Mixture of antibiotics

ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Individual (between rows)	17059	2	8529	F (2, 4) = 140.6	P=0.0002
Residual (random)	242.6	4	60.66		
Total	17683	8			

Table S5 -Reusability of FBCR for remediation of antibiotics in continuous mode

ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Treatment (between	3601	4	900.4	F (4, 10) = 17.53	p=0.0002

columns)			
Residual (within			
columns)	513.6	10	51.36
Total	4115	14	
