Supplementary Materials

Antimicrobial Resistance Profiles, Virulence Determinants, and Biofilm Formation in Enterococci Isolated from Rhesus Macaques (*Macaca mulatta*): A Potential Threat for Wildlife in Bangladesh?

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Supplementary Materials

Supplementary Table S1. Pearson correlation coefficient to assess the pairs of any of two virulence genes detected in *E. faecalis* isolated from rectal swab of samples of rhesus macaques.

		agg	*fsrA*	*fsrB*	*fsrC*	*pil*	*gelE*	*sprE*	*ace*	*cyl*
agg	Pearson Correlation	1								
	Sig. (2-tailed)									
fsrA	Pearson Correlation	0.142	1							
	Sig. (2-tailed)	0.358								
fsrB	Pearson Correlation	-0.069	0.017	1						
	Sig. (2-tailed)	0.656	0.912							
fsrC	Pearson Correlation	-0.048	-0.118	-0.069	1					
	Sig. (2-tailed)	0.759	0.444	0.656						
pil	Pearson Correlation	-0.048	0.402**	-0.069	-0.048	1				
	Sig. (2-tailed)	0.759	0.007	0.656	0.759					
gelE	Pearson Correlation	-0.059	0.068	-0.086	-0.059	-0.059	1			
	Sig. (2-tailed)	0.703	0.659	0.581	0.703	0.703				
sprE	Pearson Correlation	-0.033	0.281	0.482**	-0.033	-0.033	-0.041	1		
	Sig. (2-tailed)	0.83	0.064	0.001	0.83	0.83	0.79			
ace	Pearson Correlation	0.142	0.871**	0.017	-0.118	0.402**	-0.147	0.281	1	
	Sig. (2-tailed)	0.358	0	0.912	0.444	0.007	0.342	0.064		.
cyl	Pearson Correlation	.a	.a	.a	.a	.a	.a	.a	.a	.a
	Sig. (2-tailed)	.	.	.	.	.	.	.	.	

**Correlation is significant at the 0.01 level (2-tailed), [a]Can-t be computed because at least one of the variables is constant.

Supplementary Table S2. Association in the detection of virulence genes and determination of biofilm formation in *E. faecalis* (n = 44) isolated from rectal swab samples of rhesus macaques.

Virulence genes	Virulence in different degrees of biofilm formation			*p*-value
	No. (%) strong biofilm former (n = 9)	No. (%) intermediate biofilm former (n = 26)	No. (%) non-biofilm former (n = 9)	
agg	9 (100^{a,b})	26 (100^{b})	7 (77.8^{a})	0.017
fsrA	9 (100^{a})	26 (100^{a})	0 (0^{b})	<0.001
fsrB	9 (100^{a})	23 (88.5^{a})	9 (100^{a})	0.328
fsrC	9 (100^{a})	25 (96.2^{a})	9 (100^{a})	0.702
pil	9 (100^{a,b})	26 (100^{b})	7 (77.8^{a})	0.017
gelE	9 (100^{a})	23 (88.5^{a})	9 (100^{a})	0.328
sprE	9 (100^{a})	26 (100^{a})	8 (88.9^{a})	0.137
ace	9 (100^{a})	26 (100^{a})	0 (0^{b})	<0.001
cyl	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA

Here, values with different superscripts differ significantly (P < 0.05) within the variable under assessment, CI= Confidence interval, NA= Not applied.

Supplementary Table S3. Association of antibiotic resistance patterns and biofilm formation in *E. faecalis* strains detected in rectal swab samples of rhesus macaques.

Categories	Antibiotics	Antibiotic resistance in different degrees of biofilm formation			*p*-value
		No. (%) strong biofilm former (n = 9)	No. (%) intermediate biofilm former (n = 26)	No. (%) non-biofilm former (n = 9)	
Phenotypic	**CIP**	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA
	TE	2 (22.2^{a})	6 (23.1^{a})	1 (11.1^{a})	0.737
	LEV	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA
	FOS	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA
	RD	9 (100^{a})	26 (100^{a})	9 (100^{a})	NA
	P	9 (100^{a})	26 (100^{a})	9 (100^{a})	NA
	LZD	9 (100^{a})	16 (61.5^{a})	1 (11.1^{b})	0.001
	NOR	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA
	NIT	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA
	AMP	9 (100^{a})	26 (100^{a})	9 (100^{a})	NA
	C	2 (22.2^{a})	1 (3.8^{a})	0 (0^{a})	0.112
	VA	9 (100^{a})	13 (50^{b})	1 (11.1^{b})	0.001
	E	9 (100^{a})	15 (57.7^{a,b})	2 (22.2^{b})	0.003
Genotypic	***bla*TEM**	9 (100^{a})	12 (46.2^{b})	6 (66.7^{a,b})	0.016

Here, values with different superscripts differ significantly (P < 0.05) within the variable under assessment, CI= Confidence interval, NA= Not applied.

Supplementary Table S4: Pearson correlation coefficient to assess the pairs of any of two virulence genes detected in *E. faecium* isolated from rectal swab samples of rhesus macaques

Correlations										
		agg	***fsrA***	***fsrB***	***fsrC***	***pil***	***gelE***	***sprE***	***ace***	***cyl***
agg	Pearson Correlation	1								
	Sig. (2-tailed)									
fsrA	Pearson Correlation	0.48	1							
	Sig. (2-tailed)	0.07								
fsrB	Pearson Correlation	0.48	0.722**	1						
	Sig. (2-tailed)	0.07	0.002							
fsrC	Pearson Correlation	0.48	0.722**	0.722**	1					
	Sig. (2-tailed)	0.07	0.002	0.002						
pil	Pearson Correlation	0.207	-0.185	-0.185	-0.185	1				
	Sig. (2-tailed)	0.459	0.51	0.51	0.51					
gelE	Pearson Correlation	0.48	0.722**	0.722**	0.722**	-0.185	1			
	Sig. (2-tailed)	0.07	0.002	0.002	0.002	0.51				
sprE	Pearson Correlation	0.48	0.444	0.444	0.444	0.431	0.444	1		
	Sig. (2-tailed)	0.07	0.097	0.097	0.097	0.109	0.097			
ace	Pearson Correlation	0.650**	0.739**	0.739**	0.739**	-0.023	0.739**	0.739**	1	
	Sig. (2-tailed)	0.009	0.002	0.002	0.002	0.936	0.002	0.002		
cyl	Pearson Correlation	0.423	0.48	0.48	0.48	-0.237	0.48	0.48	0.650**	1
	Sig. (2-tailed)	0.116	0.07	0.07	0.07	0.396	0.07	0.07	0.009	

**Correlation is significant at the 0.01 level (2-tailed).

Supplementary Table S05. Association in the detection of virulence genes and determination of biofilm formation in *E. faecium* (n = 15) isolated from rectal swab samples of rhesus macaques.

Virulence genes	**Virulence in different degrees of biofilm formation**			***p*-value**
	No. (%) strong biofilm former (n = 3)	**No. (%) intermediate biofilm former (n = 9)**	**No. (%) non-biofilm former (n = 3)**	
agg	2 (66.7^{a})	0 (0^{b})	0 (0^{a,b})	0.010
fsrA	3 (100^{a})	3 (33.3^{a,b})	0 (0^{b})	0.036
fsrB	3 (100^{a})	3 (33.3^{a,b})	0 (0^{b})	0.036
fsrC	3 (100^{a})	3 (33.3^{a,b})	0 (0^{b})	0.036
pil	1 (33.3^{a})	3 (33.3^{a})	0 (0^{a})	0.506
gelE	3 (100^{a})	3 (33.3^{a,b})	0 (0^{b})	0.036
sprE	3 (100^{a})	3 (33.3^{a,b})	0 (0^{b})	0.036
ace	3 (100^{a})	1 (11.1^{b})	0 (0^{b})	0.005
cyl	0 (0^{a})	0 (0^{a})	0 (0^{a})	NA

Here, values with different superscripts differ significantly (P < 0.05) within the variable under assessment, CI= Confidence interval, NA= Not applied.

Supplementary Table S6. Association of antibiotic resistance patterns and biofilm formation in *E. faecium* strains detected in rectal swab samples of rhesus macaques.

Categories	Antibiotics	Antibiotic resistance in different degrees of biofilm formation			*p*-value
		No. (%) strong biofilm former (n = 3)	No. (%) intermediate biofilm former (n = 9)	No. (%) non-biofilm former (n = 3)	
Phenotypic	**CIP**	0 (0[a])	0 (0[a])	0 (0[a])	NA
	TE	0 (0[a])	0 (0[a])	0 (0[a])	NA
	LEV	0 (0[a])	0 (0[a])	0 (0[a])	NA
	FOS	0 (0[a])	0 (0[a])	0 (0[a])	NA
	RD	3 (100[a])	9 (100[a])	3 (100[a])	NA
	P	3 (100[a])	9 (100[a])	3 (100[a])	NA
	LZD	3 (100[a])	6 (66.7[a,b])	0 (0[b])	0.036
	NOR	0 (0[a])	0 (0[a])	0 (0[a])	NA
	NIT	0 (0[a])	0 (0[a])	0 (0[a])	NA
	AMP	3 (100[a])	9 (100[a])	3 (100[a])	NA
	C	0 (0[a])	0 (0[a])	0 (0[a])	NA
	VA	3 (100[a])	4 (44.4[a,b])	0 (0[b])	0.048
	E	3 (100[a])	9 (100[a])	3 (100[a])	NA
Genotypic	***bla*TEM**	3 (100[a])	6 (66.7[a,b])	0 (0[b])	0.036

Here, values with different superscripts differ significantly (P < 0.05) within the variable under assessment, CI = Confidence interval, NA= Not applied.