CHAPTER 7

CONCLUSION AND SUGGESTIONS

7.1 Conclusion

7.1.1 There is a significant increase of resistance on *K.pneumoniae* towards antimicrobial at Dr.Saiful Anwar General Hospital, Malang from year 2009/10 to 2010/2011.

7.1.2 There is significant increase in resistance of amoxicillin+clavulanic acid,kanamicin,ciprofloxacin and nalidixic acid.

7.1.3 There is no significant increase in resistance of cefotaxime, ceftriaxone, cefuroxime,cephalothin,gentamicin,netilmicin,amikacin,ofloxacin,norfloxacin,meropenem,tetracyline,doxycycline,chloramphenicol,cotrimaxazole,sulfonamide and nitrofurantoin.

7.2 Suggestions

- This kind of research should be continued so that the antimicrobial susceptibility pattern towards *K.pneumoniae* can be monitored in years to come.
- Sensitivity test should be conducted before prescribing antimicrobials drugs to patient to prevent the prescription of resistant antimicrobial drugs.
- A further study should be conducted focusing more on risk factors.
- Restrict antimicrobial use for inappropriate indications. Reevaluate the first and second line therapies for the treatment of urinary tract infections in our regions.

- Clinician should be more careful in prescribing antimicrobials to patients especially for antimicrobials which shows decreased sensitivity. Moreover, clinicians should not overprescribe sensitive antimicrobials as this can lead to resistance in future.
- Pharmacist should control the sales of antimicrobial drugs so that it is not misused by community, especially those without clinician's prescription.
- Provide patient education on *K.pneumoniae* infection, prevention and management.
- Medical staffs should obtain complete data of patient and be recorded completely.

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APPENDICES

A.Results of data analysis of each antibiotic

1)

year * amoxiclav Crosstabulation

			amoxiclav		
			Sensitive	Resistant	Total
year	2009	Count	41	19	60
		% within amoxiclav	57.7%	35.2%	48.0%
	2011	Count	30	35	65
		% within amoxiclav	42.3%	64.8%	52.0%
Total		Count	71	54	125
		% within amoxiclav	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	6.255[a]	1	.012		
Continuity Correction[b]	5.384	1	.020		
Likelihood Ratio	6.324	1	.012		
Fisher's Exact Test				.018	.010
Linear-by-Linear Association	6.205	1	.013		
N of Valid Cases[b]	125				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 25.92.

b. Computed only for a 2x2 table

2)

year * cefotaxim Crosstabulation

			cefotaxim		
			Sensitive	resistant	Total
year	2009	Count	24	14	38
		% within cefotaxim	52.2%	42.4%	48.1%
	2011	Count	22	19	41
		% within cefotaxim	47.8%	57.6%	51.9%
Total		Count	46	33	79
		% within cefotaxim	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.732[a]	1	.392		
Continuity Correction[b]	.393	1	.531		
Likelihood Ratio	.734	1	.392		
Fisher's Exact Test				.494	.266
Linear-by-Linear Association	.722	1	.395		
N of Valid Cases[b]	79				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 15.87.

b. Computed only for a 2x2 table

3)

year * ceftriaxone Crosstabulation

			ceftriaxone		
			sensitive	resistant	Total
year	2009	Count	31	12	43
		% within ceftriaxone	54.4%	48.0%	52.4%
	2011	Count	26	13	39
		% within ceftriaxone	45.6%	52.0%	47.6%
Total		Count	57	25	82
		% within ceftriaxone	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.284[a]	1	.594		
Continuity Correction[b]	.086	1	.770		
Likelihood Ratio	.284	1	.594		
Fisher's Exact Test				.637	.384
Linear-by-Linear Association	.281	1	.596		
N of Valid Cases[b]	82				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.89.

b. Computed only for a 2x2 table

4)

year * cefuroxim Crosstabulation

			cefuroxim		
			sensitive	resistant	Total
year	2009	Count	18	19	37
		% within cefuroxime	69.2%	45.2%	54.4%
	2011	Count	8	23	31
		% within cefuroxime	30.8%	54.8%	45.6%
Total		Count	26	42	68
		% within cefuroxime	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.727[a]	1	.054		
Continuity Correction[b]	2.822	1	.093		
Likelihood Ratio	3.799	1	.051		
Fisher's Exact Test				.079	.046
Linear-by-Linear Association	3.672	1	.055		
N of Valid Cases[b]	68				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.85.

b. Computed only for a 2x2 table

5)

year * cephalotin Crosstabulation

			cephalotin		
			sensitive	resistant	Total
year	2009	Count	11	18	29
		% within cephalotin	40.7%	60.0%	50.9%
	2011	Count	16	12	28
		% within cephalotin	59.3%	40.0%	49.1%
Total		Count	27	30	57
		% within cephalotin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.109[a]	1	.146		
Continuity Correction[b]	1.409	1	.235		
Likelihood Ratio	2.122	1	.145		
Fisher's Exact Test				.189	.118
Linear-by-Linear Association	2.072	1	.150		
N of Valid Cases[b]	57				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.26.

b. Computed only for a 2x2 table

6)

year * kanamicin Crosstabulation

			kanamicin		
			sensitive	resistant	Total
year	2009	Count	17	23	40
		% within kanamycin	42.5%	65.7%	53.3%
	2011	Count	23	12	35
		% within kanamycin	57.5%	34.3%	46.7%
Total		Count	40	35	75
		% within kanamycin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.042[a]	1	.044		
Continuity Correction[b]	3.163	1	.075		
Likelihood Ratio	4.086	1	.043		
Fisher's Exact Test				.064	.037
Linear-by-Linear Association	3.988	1	.046		
N of Valid Cases[b]	75				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.33.

b. Computed only for a 2x2 table

7)

year * gentamicin Crosstabulation

			gentamicin		
			sensitive	resistant	Total
year	2009	Count	45	2	47
		% within gentamicin	54.2%	66.7%	54.7%
	2011	Count	38	1	39
		% within gentamicin	45.8%	33.3%	45.3%
Total		Count	83	3	86
		% within gentamicin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.181[a]	1	.670		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.186	1	.667		
Fisher's Exact Test				1.000	.570
Linear-by-Linear Association	.179	1	.672		
N of Valid Cases[b]	86				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.36.

b. Computed only for a 2x2 table

8)

year * Netilmicin Crosstabulation

			Netilmicin		
			sensitive	resistant	Total
year	2009	Count	61	1	62
		% within Netilmicin	49.2%	33.3%	48.8%
	2011	Count	63	2	65
		% within Netilmicin	50.8%	66.7%	51.2%
Total		Count	124	3	127
		% within Netilmicin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.295[a]	1	.587		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.301	1	.583		
Fisher's Exact Test				1.000	.518
Linear-by-Linear Association	.293	1	.589		
N of Valid Cases[b]	127				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.46.

b. Computed only for a 2x2 table

9)

year * Amikacin Crosstabulation

			Amikacin		
			sensitive	resistant	Total
year	2009	Count	63	2	65
		% within Amikacin	47.7%	25.0%	46.4%
	2011	Count	69	6	75
		% within Amikacin	52.3%	75.0%	53.6%
Total		Count	132	8	140
		% within Amikacin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.566[a]	1	.211		
Continuity Correction[b]	.786	1	.375		
Likelihood Ratio	1.651	1	.199		
Fisher's Exact Test				.285	.189
Linear-by-Linear Association	1.555	1	.212		
N of Valid Cases[b]	140				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.71.

b. Computed only for a 2x2 table

10)

year * ciprofloxacin Crosstabulation

			ciprofloxacin		
			sensitive	resistant	Total
year	2009	Count	28	3	31
		% within ciprofloxacin	58.3%	23.1%	50.8%
	2011	Count	20	10	30
		% within ciprofloxacin	41.7%	76.9%	49.2%
Total		Count	48	13	61
		% within ciprofloxacin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.088[a]	1	.024		
Continuity Correction[b]	3.775	1	.052		
Likelihood Ratio	5.300	1	.021		
Fisher's Exact Test				.031	.025
Linear-by-Linear Association	5.004	1	.025		
N of Valid Cases[b]	61				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.39.

b. Computed only for a 2x2 table

11)

year * ofloxacin Crosstabulation

			ofloxacin		
			sensitive	resistant	Total
year	2009	Count	23	3	26
		% within ofloxacin	46.9%	50.0%	47.3%
	2011	Count	26	3	29
		% within ofloxacin	53.1%	50.0%	52.7%
Total		Count	49	6	55
		% within ofloxacin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.020[a]	1	.887		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.020	1	.887		
Fisher's Exact Test				1.000	.611
Linear-by-Linear Association	.020	1	.888		
N of Valid Cases[b]	55				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.84.

b. Computed only for a 2x2 table

12)

year * norfloxacin Crosstabulation

			norfloxacin		
			sensitive	resistant	Total
year	2009	Count	28	1	29
		% within norfloxacin	52.8%	33.3%	51.8%
	2011	Count	25	2	27
		% within norfloxacin	47.2%	66.7%	48.2%
Total		Count	53	3	56
		% within norfloxacin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.432[a]	1	.511		
Continuity Correction[b]	.004	1	.949		
Likelihood Ratio	.438	1	.508		
Fisher's Exact Test				.605	.473
Linear-by-Linear Association	.425	1	.515		
N of Valid Cases[b]	56				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.45.

b. Computed only for a 2x2 table

13)

year * meropenam Crosstabulation

			meropenam		
			sensitive	resistant	Total
year	2009	Count	62	1	63
		% within meropenam	45.6%	50.0%	45.7%
	2011	Count	74	1	75
		% within meropenam	54.4%	50.0%	54.3%
Total		Count	136	2	138
		% within meropenam	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.015[a]	1	.901		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.015	1	.901		
Fisher's Exact Test				1.000	.706
Linear-by-Linear Association	.015	1	.901		
N of Valid Cases[b]	138				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is .91.

b. Computed only for a 2x2 table

14)

year * tetracycline Crosstabulation

			tetracycline		
			sensitive	resistant	Total
year	2009	Count	28	1	29
		% within tetracycline	50.0%	50.0%	50.0%
	2011	Count	28	1	29
		% within tetracycline	50.0%	50.0%	50.0%
Total		Count	56	2	58
		% within tetracycline	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.000[a]	1	1.000		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.000	1	1.000		
Fisher's Exact Test				1.000	.754
Linear-by-Linear Association	.000	1	1.000		
N of Valid Cases[b]	58				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

b. Computed only for a 2x2 table

15)

year * doxycycline Crosstabulation

			doxycycline		
			sensitive	resistant	Total
year	2009	Count	11	3	14
		% within doxycycline	39.3%	50.0%	41.2%
	2011	Count	17	3	20
		% within doxycycline	60.7%	50.0%	58.8%
Total		Count	28	6	34
		% within doxycycline	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.234[a]	1	.628		
Continuity Correction[b]	.001	1	.979		
Likelihood Ratio	.231	1	.631		
Fisher's Exact Test				.672	.482
Linear-by-Linear Association	.227	1	.634		
N of Valid Cases[b]	34				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 2.47.

b. Computed only for a 2x2 table

16)

year * chloramphenicol Crosstabulation

			chloramphenicol		
			sensitive	resistant	Total
year	2009	Count	28	8	36
		% within chloramphenicol	49.1%	72.7%	52.9%
	2011	Count	29	3	32
		% within chloramphenicol	50.9%	27.3%	47.1%
Total		Count	57	11	68
		% within chloramphenicol	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	2.062[a]	1	.151		
Continuity Correction[b]	1.223	1	.269		
Likelihood Ratio	2.140	1	.143		
Fisher's Exact Test				.196	.134
Linear-by-Linear Association	2.032	1	.154		
N of Valid Cases[b]	68				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.18.

b. Computed only for a 2x2 table

17)

year * cotrimoxazole Crosstabulation

			cotrimoxazole		
			sensitive	resistant	Total
year	2009	Count	28	2	30
		% within cotrimoxazole	54.9%	66.7%	55.6%
	2011	Count	23	1	24
		% within cotrimoxazole	45.1%	33.3%	44.4%
Total		Count	51	3	54
		% within cotrimoxazole	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.159[a]	1	.690		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.163	1	.687		
Fisher's Exact Test				1.000	.585
Linear-by-Linear Association	.156	1	.693		
N of Valid Cases[b]	54				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.33.

b. Computed only for a 2x2 table

18)

year * sulfonamide Crosstabulation

			sulfonamide		
			sensitive	resistant	Total
year	2009	Count	23	1	24
		% within sulfonamide	57.5%	33.3%	55.8%
	resistant	Count	17	2	19
		% within sulfonamide	42.5%	66.7%	44.2%
Total		Count	40	3	43
		% within sulfonamide	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.661[a]	1	.416		
Continuity Correction[b]	.044	1	.833		
Likelihood Ratio	.660	1	.416		
Fisher's Exact Test				.575	.411
Linear-by-Linear Association	.646	1	.422		
N of Valid Cases[b]	43				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 1.33.

b. Computed only for a 2x2 table

19)

year * nalidixicacid Crosstabulation

			nalidixicacid		
			sensitive	resistant	Total
year	2009	Count	28	1	29
		% within nalidixicacid	60.9%	14.3%	54.7%
	2011	Count	18	6	24
		% within nalidixicacid	39.1%	85.7%	45.3%
Total		Count	46	7	53
		% within nalidixicacid	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	5.321[a]	1	.021		
Continuity Correction[b]	3.607	1	.058		
Likelihood Ratio	5.681	1	.017		
Fisher's Exact Test				.038	.028
Linear-by-Linear Association	5.221	1	.022		
N of Valid Cases[b]	53				

a. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.17.

b. Computed only for a 2x2 table

20)

year * nitrofurantoin Crosstabulation

			nitrofurantoin		
			sensitive	resistant	Total
year	2009	Count	26	10	36
		% within nitrofurantoin	47.3%	45.5%	46.8%
	2011	Count	29	12	41
		% within nitrofurantoin	52.7%	54.5%	53.2%
Total		Count	55	22	77
		% within nitrofurantoin	100.0%	100.0%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.021[a]	1	.885		
Continuity Correction[b]	.000	1	1.000		
Likelihood Ratio	.021	1	.885		
Fisher's Exact Test				1.000	.544
Linear-by-Linear Association	.021	1	.886		
N of Valid Cases[b]	77				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.29.

b. Computed only for a 2x2 table

B.Master Table Year 2009/2010

Antibiotics	Resistant	Sensitive
Amoxicilin + Clavunic acid	𝍸 𝍸 𝍸 ||||	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |
Cefotaxime	𝍸 𝍸 ||||	𝍸 𝍸 𝍸 𝍸 ||||
Ceftriaxone	𝍸 𝍸 ||	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |
Cefuroxime	𝍸 𝍸 𝍸 ||||	𝍸 𝍸 𝍸 |||
Cephalothin	𝍸 𝍸 𝍸 |||	𝍸 𝍸 |
Kanamicin	𝍸 𝍸 𝍸 𝍸 |||	𝍸 𝍸 𝍸 ||
Gentamicin	||	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
Netilmicin	|	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |
Amikacin	||	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |||
Ciprofloxacin	|||	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Ofloxacin	|||	𝍸 𝍸 𝍸 𝍸 |||
Norfloxacin	|	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Meropenam	|	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 ||
Tetracycline	|	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Doxycycline	|||	𝍸 𝍸 |
Chloramphrenicol	𝍸 |||	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Cotrimoxazole	||	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Sulfonamide	|	𝍸 𝍸 𝍸 𝍸 |||
Nalidixic Acid	|	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Nitrofurantoin	𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 |

C.Master Table Year 2010/2011

Antibiotics	Resistant	Sensitive
Amoxicilin + Clavunic acid	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
Cefotaxime	𝍸 𝍸 𝍸 ||||	𝍸 𝍸 𝍸 𝍸 ||
Ceftriaxone	𝍸 𝍸 |||	𝍸 𝍸 𝍸 𝍸 𝍸 |
Cefuroxime	𝍸 𝍸 𝍸 𝍸 |||	𝍸 |||
Cephalothin	𝍸 𝍸 ||	𝍸 𝍸 𝍸 |
Kanamicin	𝍸 𝍸 ||	𝍸 𝍸 𝍸 𝍸 |||
Gentamicin	|	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |||
Netilmicin	||	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 |||
Amikacin	𝍸 |	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 ||||
Ciprofloxacin	𝍸 𝍸	𝍸 𝍸
Ofloxacin	|||	𝍸 𝍸 𝍸 𝍸 𝍸 |
Norfloxacin	||	𝍸 𝍸 𝍸 𝍸 𝍸
Meropenam	|	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 ||||
Tetracycline	|	𝍸 𝍸 𝍸 𝍸 𝍸 |||
Doxycycline	|||	𝍸 𝍸 𝍸 ||
Chloramphrenicol	|||	𝍸 𝍸 𝍸 𝍸 𝍸 ||||
Cotrimoxazole	|	𝍸 𝍸 𝍸 𝍸 |||
Sulfonamide	||	𝍸 𝍸 𝍸 ||
Nalidixic Acid	𝍸 |	𝍸 𝍸 𝍸 |||
Nitrofurantoin	𝍸 𝍸 ||	𝍸 𝍸 𝍸 𝍸 𝍸 ||||

STATEMENT OF ORIGINALITY

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Malang,November 2012

Sincerely,

(Vinoth Kumar Raman)

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