

&LWDWLEKWLHUUH] &KDYH] \$- *X]PDQ 5RGULJXH] -- /HRQ *DOYDQ 0) %D B W/D]SK &GRURFOFF X/V B B
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3DJH RI

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FDVH RI ERYLQH FOLQLFDO PDVWLWLWV ZDV FXHQGDUE WIKLQ WHWUCDOOY BAWUDR DLQQFRQ
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PDPPDU\ HSLWKHODDQ HHLQOVROO WH *YHQR POFWKIS LVRODWLRQ
ZRUN 1&%, (0%/ DFFHVLRQ -4 ZDV UHSRUWHG E\ /HuQ
*DOYEQ HW DO > @ %DFWHULD ZHUH JREWHUW D ZHUR F X O W X U H G L Q / % P H G L D
%HUWDQL EURWK ',%,&2 IRU FRROKRALQY W X S H Z P H Q W Z D V P L H G Z L W K O I V L V V R O X W
IRUPLQJ XQLWV &)8 ZHUH DGMXVWHG E\ YRSWLH D J D Q G Z D V G H W H F P L Q D W L R Q D
2 ' QP '1\$ ZDV H[WUDFWHG E\ DGGLWLRQ RI
LVRDPO DOFRKRO JHQWO\ PLJHG

3ULPDU\ RXRWXQH PDPPDU\ HSLWKHODDQ BWOOV HEOTKHXV SKDVH ZDV UHF
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ODFWDWLQJ FRZ XGGHUV DV GHVFULEHG E\ 2FKRD =DU]RSD HW DO > @ E0(& PROROD\HUV
IURP SDVVWJH ZHUH FXOWXUH G LQ JURZWK PHGLXP FRPSRVHG DQG VYRUPGFRV XQWLO XVH
E\ '0(0 PHGLXP QXWULHQW PL[WXUH) +DP '0(0)

6LJPD VXSSOPHQWHG ZLWK IHWD Amplification Rule 25.1 DQGS DHOHV /
LQVXOLQ 6LJPD WJ P/ KIGURFRUWLV BSKIORFRFFXV D B QHWLV
SHQLFLOOLQ VWUHSWRP\FLQ WJ P/ DQG WJ P/ DPSKRWHULFLO % FDUULHG
,QYLWURJHQ 6XEVHTXHQWO\ DMPROYSZHUH DWR BQESB DQGS DHOHV ZDV FDUULHG
r& SURGHOH\JPH ,QYLWURJHQ 20LJRQX
DOLJPHQW WPHSHUDXUHV \$B B L W F O R Z I Q

ORUSKRORJLFDQ DQG ELRFKHPFLDQ V F K D U D F W H U L J D W L R Q R I O D G r & \$ Q D
6WDSKIORFRFFXV DVQRDWH / RI WKH 3&5 SURGXFWV ZDV VXEMHFW

,Q D SUHYLRXV ZFRUW\ ZDGHQWEL}FRORZ Y DOJDURVH JHOV DQG VWDLQHG ZLWK
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\$GGLWLRQDOO\ LQ WKLV ZRUN ZH FDUULHG RXW D ELRFKHPFLDQ
FKDUDFWHULJDWLRQ WKDW LQFOXGHG 3ULPHQHTXHOV WHVW \$ D Q D W R O
IHUPHQWDWLRQ DQG KHPRO\VLV SURGXFWLRQ > @

\$QWLPLFURELDO VXVFHWSWLELOLW\ WHVW LQJ *7\$*\$\$\$7*\$&7**\$&*7&*\$7*\$ *
H DQWLPLFURELDO V X V F H S W L E L O L W G R O H W R I . & \$\$\$77&\$\$&\$77*777&**7&7\$\$ *
XVLQJ WKH LUBV D R H Q G L N Q O X O O H U L Q E T S L Q W R E S S \$ \$ \$ 7 \$ * * * *
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w3H~R[DBLQ WJ &HIXUR[LPH &;0 WJ *H Q W D P L F L Q
*(WJ &HIRWD[LPH &;7; WJ FOI% X O I D P H W K R I D I R O H *
7ULPHWKRSLP 6;7 DQG WJ 7HWUDP\FOLQH **7*3**7*777&\$77J
\$PSLFLOOLQ \$0 WJ (U\WKV B L G S H (W J \$ 7 \$ 7 & 7 * * * & 7 \$ \$ & \$ & 7 * & 7 * *
WJ DQG &HSDORWKLQ &) WJ %, 25\$SD 2 [D F L O O L O U H V L V D Q F H Z D V
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VXSSOPHQWHG ZLWK 1D&O DQGVHWU P/ RI 2 [D F L O O L Q 6 L J P D
K L Q F X E D W L R Q D r &) X V L Q @ a T M 7 D E O H U L P H U V X V B S O L U F B M H R Q H V L Q Y R O
PHWKL F L O O L Q U H V L V D Q F H D Q G L Q W H U Q D

,QWHUQDOLJDWLRQ DQVFRFRFXV D Q Q R V L V
E0(&V 5HVXOWV DQG 'LVFXVVLQ

,QWHUQDOLJDWLRQ DVVD\ JHQWDFLQ SURWHFWARO DQVFRFRFXV ZHUH EDWHG
RXW DV GHVFULEHG E\ 2FKRD =DU]RSD HW DO > @ E0(& PROROD\HUV
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ERYLQH PDVW E W D V Q F O X G L Q J
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DQG LQFXEDWHG LQ JURZ PHGLD ZLWK B R W L V H U H X P V H X I S B O D H B V H C U F L O C W H K D J
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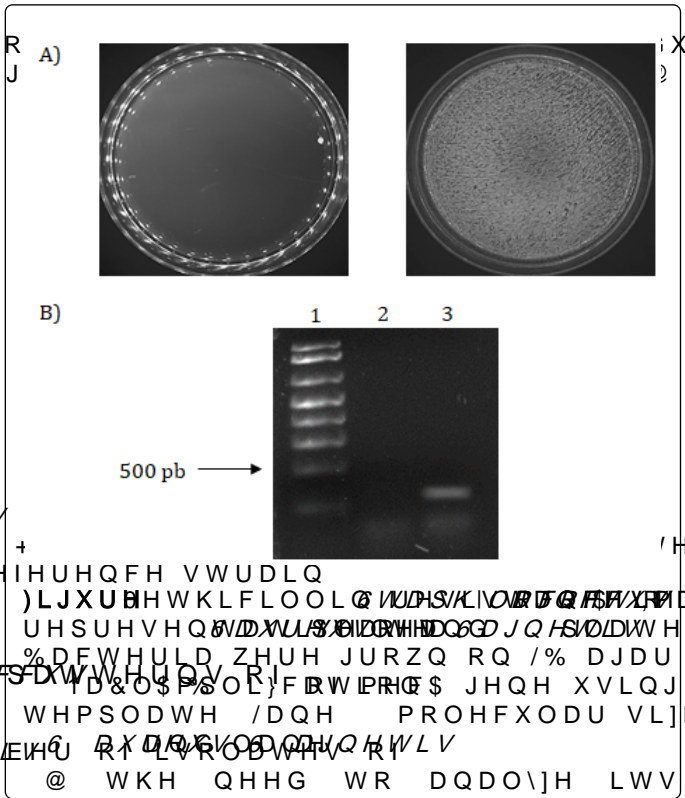
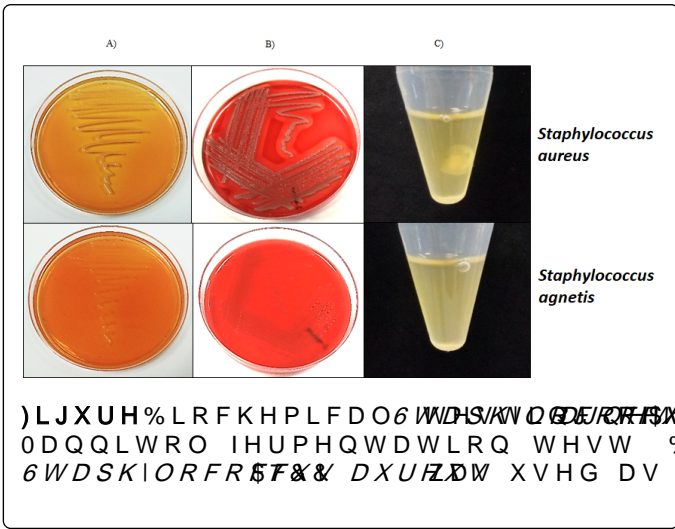
3DJH RI

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SUHYLRXVO\ > @

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W H P S O D W H / D Q H P R O H F X O D U V L J H P D U

'XH WR WKH LQFUHDVH LQ W K H C H O P E H U R I L V R O D W H V
V X E F O L Q L F D O E R Y L Q H P D V W L W L V >
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D Q W L E L R J U D P Z D V D S A M R L U P H Z V U H V L V W D Q W W R H S L W K H O L D O F H O O V E O (& V
S H Q L F L O O L Q G L F O R [D F L O O L Q D Q G D P S L F L O O L Q

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L O W D P P D P P D U L O I H F W L R Q V >
@ W K H
LV P X O W L U H V L V W D Q F H L V D Q L P S R U W D Q W W R R I O H Y S S D F L W W L R W L F U O D O L I H L O W R E R Y L Q H
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D Q W L E L R W L F V > @

, Q W K L V 6 W D H W L V V K R Z H G U H V L V W D Q F H W R V P W K L F R O Z H G W K D W W H U Q D O L J H G
R [D F L O O L Q D Q G K D P E R F O H K H 6 H Y H U D O U H R O L Y H W R F R Q W U R O) L J X U H
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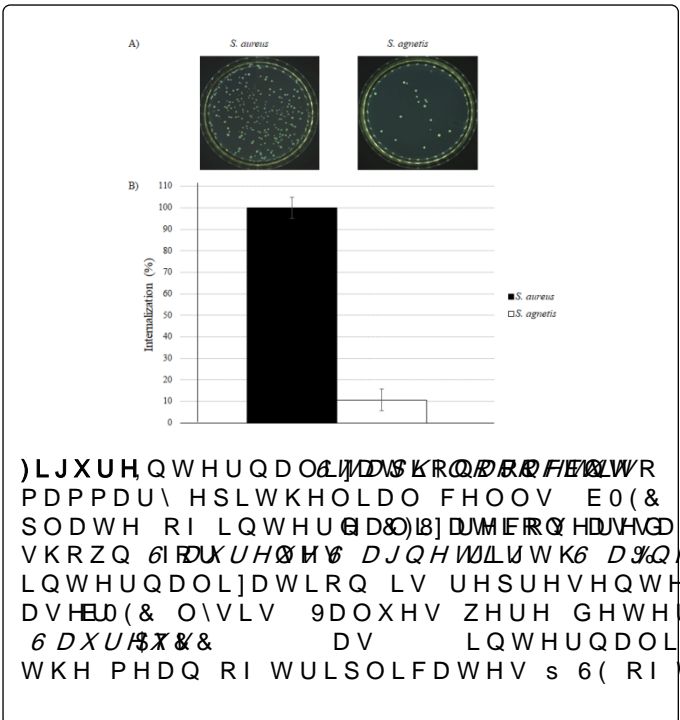
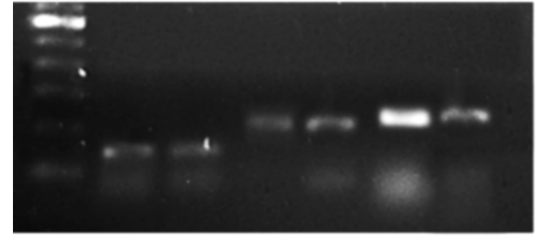
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&RQFOXVLRQ

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FRZV LQ ,QGLD)URQW 0LFURELRO (OKDQDQWLVYU WDSK\ORFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV
+DXFN &5 %RULVYD 0 0XHQ]QHU 3 \$EWHQWLVYU WDSK\ORFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV
IXQFWLRQ E\ SDWKRJHQLF PLFUREHV &XUU 6LQXVHQR&RFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV
*XWL<WUWURVR \$ \$QD\ /μSH] -/ /DUD =EUDWPHG/SHDQW 3'
/μSH] 0H]D -(HW DO 3URODFWLQ VWLWXQDWHV WKH LQWHUQDQWLVYU WDSK\ORFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV
6WDSK\ORFRFFXV DXUH XV DQG LFRDQDWHVWLVYU WDSK\ORFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV
UHVSRQVH JHQHV LQ ERYLQH PDPDU\ HSLWHLQDQWLVYU WDSK\ORFRFFXV DQWLQDQWLVYU WDSK\ORFRFFXV
,PXSQRSDWKRO /LFHQFLDWXUD 8QLYHUVLGDG 0LFRDFDQD
\$QDX]SH] -/ &RQUHUV *X]P\$Q 2(&EUDWPHG/SHDQW 3' LFR
\$JXLUW 90 /μSH] 0H]D -(HW DO ,QYDVLV SRWHQWLDQ RI EDFWHULDO
LVRODWHV DVVRFLDWHG ZLWK VXEFOLQLFDO ERYLQH PDVWLWLWV 5HV 9HW 6FL