Journal of Bioremediation & Biodegrad



:LOOLDP .DW
'HSDUWPHQW RI &KHPLVWU\ DQG %LRFKHPLVWU\ 6mR 3DXOR 6WDWH 8QLYHUVLW\ %RWXFDWX %UD]LO
&RUUHVSRQGLQJ DXWKRU LOOLDP .DW 'HSDUWPHQW RI &KHPLVWU\ DQG %LRFKHPLVWU\ 6mR 3DXOR 6WDWH 8QLYHU
5HFHLYHG 2FWRE 2FWRE 1RYHP $FFHSWHG 1RYHP 3XEOLVKHG 1RYHP 1RYHP 3XEOLVKHG 1RYHP
&LWDWLRQ .DW :
&RS\ULJKW .DW : 7KLV LV DQ RSHQ DFFHVV DUWLFOH GLVWULEXWHG XQGHU WKH WHUPV RI WKH &UHDWLYH
GLVWULEXWLRQ DQG UHSURGXFWLRQ LQ DQ\ PHGLXP SURYLGHG WKH RULJLQDO DXWKRU DQG VRXUFH DU

## (GLWRULDO 1RWH

7KH XVH RI EDFWHULD IRU ELRGHJUDGDWLRQ RI YDULHG QDWXUDO DQG DUWLILFLDO VXEVWDQFHV DQG WKHUHE\ UHGXFLQJ WKH H[WHQW RI KD]DUGV LQFUHDVLQJO\ GUDZLQJ DWWHQWLRQ %DFWHULD SRVVHVV D JRRG VRUW RI ELRUHPHGLDWLRQ SRWHQWLDOV ZKLFK DUH EHQHILFLDO IURP ERWK DQ HQYLURQPHQWDO DQG DQ HFRQRPLF VWDQGSRLQW %LRUHPHGLDWLRQ DQG ELRWUDQVIRUPDWLRQ PHWKRGV DUH HPSORIHG WR WDS WKH SUHVHQW PHWDERO DELOLW\ RI PLFURRUJDQLVPV WR GHJUDGH WUDQVIRUP RU DFFXPXODWH WR[LF FRPSRXQGV LQFOXGLQJ K\GURFDUERQV KHWHURFFOLF FRPSRXQGV SKDUPDFHXWLFDO VXEVWDQFHV UDGLRQXFOLGHV DQG WR[LF PHWDOV 7KH JRD LQ ELRUHPHGLDWLRQ LV WR VWLPXODWH PLFURRUJDQLVPV ZLWK QXWULHQWV DQ RWKHU FKHPLFDOV WKDW HQDEOH WKHP WR GHJUDGH WKH FRQWDPLQDQWV 7KH ELRUHPHGLDWLRQ V\VWHPV RSHUDWLRQDO WRGD\ EHOLHYH PLFURRUJDQLVPV QDWLYH WR WKH FRQWDPLQDWHG VLWHV HQFRXUDJLQJ WKHP WR ZRUN E\ VXSSO\LQJ WKHP ZLWK RSWLPXP OHYHOV RI QXWULHQWV DQG RWKHU FKHPLFDOV HVVHQWLDO IRU WKHLU PHWDEROLVP 7RZHYHU UHVHDUFKHUV DUH VWLOO LQYHVWLJDWLQJ ZD\V WR UHLQIRUFH FRQWDPLQDWHG VLWHV ZLWK QRQ QDWLY PLFUREHV DOVR DV JHQHWLFDOO\ HQJLQHHUHG PLFUREHV ILWWHG WR GHJUDGLQ WKH FRQWDPLQDQWV RI FRQFHUQ DW SDUWLFXODU VLWHV

0LFURRUJDQLVPV JDLQ HQHUJ\ E\ FDWDO\VLQJ HQHUJ\ SURGXFLQJ FKHPLFDO UHDFWLRQV WKDW LQYROYH EUHDNLQJ FKHPLFDO UHDFWLRQV WKXV WUDQVIHUULQJ HOHFWURQV IDU DZD\ IURP WKH FRQWDPLQDQW 7KH HQHUJ\ JDLQHG IURP WKHVH HOHFWURQ WUDQVIHUV LV WKHQ LQYHVWHG DORQJ ZLWK VH HOHFWURQV DQG FDUERQ IURP WKH FRQWDPLQDQW WR SURYLGH PRUH FHOOV 7KHUH DUH D PLQLPXP RI ILYH FULWLFDO IDFWRUV WKDW RXJKW WR EH FRQVLGHUHG ZKLOH HYDOXDWLQJ WKH PLFURELDO ELRUHPHGLDWLRQ IRU VLWH FOHDQ XS 7KHVH IDFWRUV LQFOXGH

0DJQLWXGH WR[LFLW\ DQG PRELOLW\ RI FRQWDPLQDQWV WKH ORFDWLRQ VKRXOG EH SURSHUO\ LQYHVWLJDWHG DQG FKDUDFWHUL]HG WR ZRUN RXW WKH KRUL]RQWDO DQG YHUWLFDO H[WHQW RI FRQWDPLQDWLRQ LL WKH NLQGV DQ

FRQFHQWUDWLRQV RI FRQWDPLQDQWV DW FRQWDPLQDQWV LQ IXWXUH ZKLFK GH FKDUDFWHULVWLFV RI WKH ORFDWLRQ

3UR[LPLW\ RI KXPDQ DQG HQYLURQPH ELRUHPHGLDWLRQ LV DQ DSSURSULDWH R GHSHQGHQW XSRQ WKH HDWH DQG H[WHQW

HJUDGDELOLW\ RI FRQWDPLQDQWV 7KH GHSHQGV RQ WKH RFFXUUHQFH RI WKH LQVWDQFHV FRPSRXQGV ZLWK D KLJK PRO KDYLQJ FRPSOH[ ULQJ VWUXFWXUHV DQG PRUH VORZO\ WKDQ VLPSOHU RSHQ FKDLQ PROHFXODU PDVV FRPSRXQGV 7KXV WKH FRPSRXQG LV PHWDEROLJHG ZLWKLQ WKH VXSSO\ RI HOHFWURQ DFFHSWRUV DQG RW

3ODQQHG VLWH XVH 7KH FULWLFDO IDFW ELRUHPHGLDWLRQ LV WKDW WKH UDWH DQ

$ELOLW\ WR SURSHUO\ PRQLWRU 7KHUH WKH XVH RI ELRUHPHGLDWLRQ IRU FRQWDP SK\VLFDO FKHPLFDO DQG ELRGRJLFDO KH PDWUL[