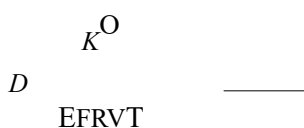
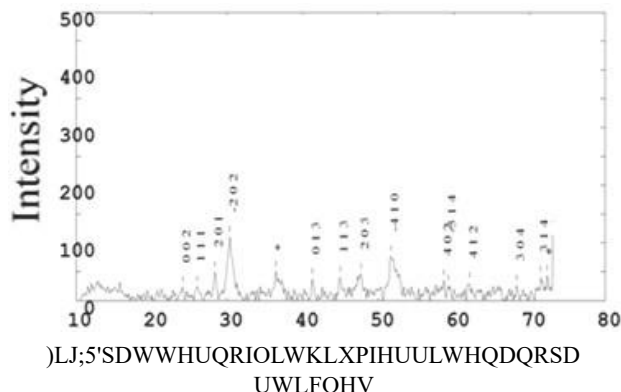


7KHV\QWKHVLJHGQDQRSDUWLFQHRIO LWK LXPIH
UULWHLV V XEMHFWHG
WRIROORZLQJFKDUDFWHULJDWLRQVDQG WKHSURS
HUWLHVDUHDOVR LQFRUSRUDWHG

A. XRD Analysis

;5\$QDO\VLVWRGHWHUPLQHWKHQDWXUHRIWKHF
U\VVWDODQGLWV
VWUXFWXUHV LJHVWUDLQDQGGLVORFDWLRQGHQ
VLW\DUHHYDOXDWHGIRU
WKHOLWKLXPIHUULWHLVGRQHZLWKWKHKHOSRI7K
H\$SGYDQFHG
%58.(5;5D\LIUDFWRPHWHU'RIZDYHOHQJWK3\$
)LJVKRZVWKH;5\$SDWWHUQRIOLWKLXPIHUULWHQD
QRSDUWLFQHV
DQG7DEOH,JLYHVWKHSURSHUWLHVYDOXHVRIO LW
KLXPIHUULWH



ZKHUH'LVWKHDYHUDJHFU\VVDOOLWHVLJHRIWKH SKDVHXQGHU
LQYHVWLJDWLRQ.LVWKH6FKHUHUFRQVWDQWLVWKHZDYH
OHQJWKRI;UD\EHDPXVHGELVWKHIXOOZLGWKKDOIPD(LPXP):+0RIGLIUDFWLRQDQGLVWKH%UDJJ
VDQJOH7KHVWUDLQ YDOXHLVFDQFODWHGZLWKWKHKHOSRI:LOOLDPVRQKDOOSORWDV
VKRZQLQ)LJ

)LJSEVRUEDQFHVSHFWUDRIOLWKLXPIHUULWH

)LJ'LUHFWEDQGDSDWDXFSORWIRUOLWKLXPIHUULWH

7\$(, 3523(57,(6)25/,7+,80)(55,7(

61R	3URSHUWLHV	/L)H2
&U\VVWDO6WUXFWXUH	0RQRFOLQLF	
	D \$	
	E \$	
/DWLWFH3DUDPHWHUV	F \$	
	I Ū □ ũ	
6LJHRIWKHFU\VVWDO	QP	
6WUDLQ		
'LVORFDWLRQ'HQVLW\ [P		

)LJ:LOOLDPVRQ+DOOSORW

B. UV-Visible Spectral Study

7KH899LVVSHFWURPHWHURI3-\$6&29'XVHGWR
DQDO\JH WKH RSWLFDQ DEVRUSWLRQ RI WKH
QDQRSDUWLFQHV 7KH
UHJLRQV IURP WR QP ZHUH VWXGLHG DW URRP
WHPSHUDWXUH
)LJVKRZVWKHF\$XWRIIZDYHOHQJWKIRUOLWKLXPIHUULWHVLV
QPDOVRWKHF\$XWRIISUHVHQWLQWKHYLVLEOHUHJLRQ6RWKH

