

# الآية

قال تعالى:

((اللَّهُ نُورُ السَّمَوَاتِ وَالْأَرْضِ مِثْلُ نُورِهِ كَمِشْكَاةٍ فِيهَا مِصْبَاحٌ الْمِصْبَاحُ فِي زُجَاجَةٍ الزُّجَاجَةُ كَأَنَّهَا كَوْكَبٌ دُرِّيٌّ يُوقَدُ مِنْ شَجَرَةٍ مُبَارَكَةٍ زَيْتُونَةٍ لَا شَرْقِيَّةٍ وَلَا غَرْبِيَّةٍ يَكَادُ زَيْتُهَا يُضِيءُ وَلَوْ لَمْ تَمْسَسْهُ نَارٌ نُورٌ عَلَى نُورٍ يَهْدِي اللَّهُ لِنُورِهِ مَنْ يَشَاءُ وَيَضْرِبُ اللَّهُ الْأَمْثَالَ لِلنَّاسِ وَاللَّهُ بِكُلِّ شَيْءٍ عَلِيمٌ))

صدق الله العظيم

سورة النور الآية (35)

# DEDICATION

To My Mother,

My husband,

My brothers,

## **ACKNOWLEDGEMENT**

First off all, I would like to thank Allah almighty for making this work possible. Secondly, I would like to express my gratitude to my supervisors Prof. Mubarak Dirar Abdallah, Dr. Sawsan Ahmed Elhoury Ahmeda, and Dr. Abdalsakhi Abdallah for his supervision, valuable advice, kind treatment and guidance during this work period and chemistry department, colleagues and all whom support me.

## ABSTRACT

In this work the effect of changing the anode of polymer solar cell on their performance was experimentally investigated .The cells were fabricated from ITO which act as a cathode beside MEH PPV ,Ecrchrom Black T and Rohadamin B dyer . The anodes which c are AL, GL ,AU with atomic number 13 , 47 and 79 were used . It was found that the efficiency of the solar cell of AL, GL ,AU electrode for Ecrchrom dye are 1.66, 1.59 , and 1.58 Respectively the efficiency for Rohadamin , Ecrchrom Black T dye are 1.49, 1.48 and 1.46 respectively these results shows clearly that the efficiency increases as the atomic number decreases this conforms with the fact that energy gap increase with the atomic number.

Solar cells made from dye sensitized solar cells made from: Ecrchrom Black T, DDTTC, Rohadamin B,and Coumarin 500,with Al and TTO electrodes were fabricated. The energy gab of these dyes were found using UV Spectrometer. The energy gap for: Ecrchrom Black T, DDTTC, Rohadamin B, and Coumarin 500; were found 2.16 eV ,2.20 eV ,3.27 eV and 3,60 respectively .

The V- I characteristics for these cells and their performance were also found. The efficiency: Ecrchrom Black T, DDTTC, Rohadamin B, Coumarin 500 were found 1.66,1.62, 1.49 and 1.31. It is realized that; the efficiency increases when energy gab decreases.

## المستخلص

تم دراسة أثر تغير المهبط في خلايا البولمر حيث صممت خلايا من اكسيد التيتانيوم كمصعد ورسب عليه بولمر ( MEH – PPV ) باستخدام الصبغات (اكري كروم بلاك تي - رودمين بي) مع تغير القطب الموجب بالفضه والالمونيوم والذهب وتحصل علي كفاءه % 1.66 ، % 1.59 و % 1.58 بالنسبه لصبغه الاكري كروم وكفاءه % 1.49 ، % 1.48 و % 1.46 بالنسبه للرودمين بي وجد أن الكفاءه تزيد بزياده الرقم الذري.

ومن ثم تم ايجاد فجوه الطاقه للصبغات المستخدمه بواسطه جهاز مطافيه الاشعه تحت البنفسجيه والمرئيه وكانت للأكري كروم تي 2.16 إلكترون فولت ودي دي تي سي 2.2 إلكترون فولت والرودمين بي 3.27 إلكترون فولت وكومرين 3.36 إلكترون فولت أخذت قراءة الجهد والتيار للخلايا المصنعه من الصبغات السابقه وكانت كفاءتها % 1.66 اكري كروم ، % 1.62 دي دي تي سي و % 1.49 رودمين بي ، % 1.36 كومرين 500 ولوحظ أن الكفاءه تزيد بنقصان فجوة الطاقه.

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