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Development of Chitosan and Nanodot (CNDs) as Chemosensors For Contact Oil Damage Detection At Magnetic Fields on Electric Currents in Solar Cells

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Abstrak

This research aims to see development of chitosan and nanodot as chemosensor for contact oil damage at magnetic fields on electric current in solar cell based on the results of 20 experiments. It can be concluded that for each equal increase in the magnetic field on a straight wire, the result is 0.25 T. For every constant increase in the strength of the electric current in the solar panel, the magnetic field also increases15 . The same data is obtained for the magnetic field of straight wire and circular wire because the magnitude of phi is neglected, because only phi is the differentiator.The greater the magnetic field, the greater the electric current in the solar cell and vice versa. This relationship is a straight line.,

Keywords: Magnetic fields, electric current, solar cell.

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INTRODUCTION

Energy conservation efficiency of solar cell to electromagnetic bring a lot of positive influence for the development of energy.Today solar cells are being promoted, especially in Asian countries which get sunlight all year round1. The efficiency of an energy conversion device is a quantitative expression of the balance between energy input and energy output.One solar cell energy source can be used for more than one electrical load so that the electric power absorbed is smaller because it only uses one solar cell energy source.The magnetic field is the area around the magnet which is still affected by the magnetic force. There are 2 types of magnetic force, attraction and repulsion. Apparently, a magnetic field is also found in the area around a wire that carries an electric current. It was discovered by accident by Hans Christian Oersted (1770-1851).Oersted discovered that around a wire carrying an electric current, a compass needle that uses a magnetic base will move.

This compass needle deviation will be greater along with the greater the electric current flowing in the wire. The direction of movement of the compass needle also depends on the direction of the flowing electric current5. From this experiment, Oersted drew the conclusion that if it turns out that the electric current flowing in this wire produces a magnetic field that is circular in shape and causes the compass needle to move. To better understand the direction of the magnetic field generated by an electric current, use your right hand and fingers.

The thumb acts as the direction of the electric current, while the other 4 fingers that hold it show the direction of the magnetic field. Solar panels are a collection of solar cells arranged in such a way as to be effective in absorbing sunlight. While in charge of absorbing sunlight are solar cells. Solar cells themselves consist of various photovoltaic components or components that can convert light into electricity. Generally, solar cells consist of layers of silicon which are semiconducting, metal, anti-reflective, and strips of metal conductors.

MATERIALS & METHODS

The method used in this qualitative research is an experimental approach that aims to find certain conditions after being influenced under controlled conditions. The data collection practice is divided into 2 for The effect of the magnetic field there is a straight conductor wire against the electric current in the solar panel as much as 10 data and The effect of the magnetic field there is a circular conductor wire against the electric current in the solar panel as much as 10 data then processed.

RESULT & DISCUSSION

a. The effect of the magnetic field there is a straight conductor wire against the electric current in the solar panel

$$B = \frac{\mu_0 I}{2\pi r} \quad \text{................(1)}$$

No	I (A)	r (m)	B(T)
1.	1	2	0,25
2.	2	4	0,25
3.	3	6	0,25
4.	4	8	0,25
5.	5	10	0,25
6.	6	12	0,25
7.	7	14	0,25
8.	8	16	0,25
9.	9	18	0,25
10.	10	20	0,25

Tabel 1 data for The effect of the magnetic field there is a straight conductor wire against the electric current in the solar panel

b. The effect of the magnetic field there is a circular conductor wire against the electric current in the solar panel

$B = \frac{\mu_0 . I}{2r}$ ....(2)

No	I (A)	r (m)	B(T)
1.	1	2	0,25
2.	2	4	0,25
3.	3	6	0,25
4.	4	8	0,25
5.	5	10	0,25
6.	6	12	0,25
7.	7	14	0,25
8.	8	16	0,25
9.	9	18	0,25
10.	10	20	0,25

Tabel 2 data for The effect of the magnetic field there is a circular conductor wire against the electric current in the solar panel.

From table 1 it can be explained that for an electric current of 1A and a distance of 2 m from the point to the wire, a magnetic field of 0.25 T is obtained. For an electric current of 2A and a distance of 4 m from the point to the wire, a magnetic field of 0.25 T is obtained. For an electric current of 3A and a distance of 6 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 4 A and a distance of 8 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 6 A and a distance of 12 m from the point to the wire, a magnetic field of 0.25 T is obtained.

For an electric current of 7 A and a distance of 14 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 8 A and a distance of 16 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 9 A and a distance of 18 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 10 A and a distance of 20 m from the point to the wire, a magnetic field of 0.25 T is obtained.For every constant increase in the strength of the electric current in the solar panel, the magnetic field also increases .

From table 2 it can be explained that for an electric current of 1A and a distance of 2 m from the point to the wire, a magnetic field of 0.25 T is obtained. For an electric current of 2A and a distance of 4 m from the point to the wire, a magnetic field of 0.25 T is obtained. For an electric current of 3A and a distance of 6 m from the point to the wire, a magnetic field of 0.25 T is obtained.

For an electric current of 4 A and a distance of 8 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 6 A and a distance of 12 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 7 A and a distance of 14 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 8 A and a distance of 16 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 9 A and a distance of 18 m from the point to the wire, a magnetic field of 0.25 T is obtained.For an electric current of 10 A and a distance of 20 m from the point to the wire, a magnetic field of 0.25 T is obtained.

The same data is obtained for the magnetic field of straight wire and circular wire because the magnitude of phi is neglected, because only phi is the differentiator. This shows that table 1 and table 2, the greater the magnetic field, the greater the electric current in the solar cell and vice versa. This relationship is a straight line.

CONCLUSION

It can be concluded that for each equal increase in the magnetic field on a straight wire, the result is 0.25 T.For every constant increase in the strength of the electric current in the solar panel, the magnetic field also increases15 .The same data is obtained for the magnetic field of straight wire and circular wire because the magnitude of phi is neglected, because only phi is the differentiator.

This shows that table 1 and table 2, the greater the magnetic field, the greater the electric current in the solar cell and vice versa. This relationship is a straight line. The author would like to

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