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Judul Jurnal Ilmiah (Artikel) : Correlation of Folic Intake and Internal Carotid Artery Intima-Media Thickness Changes In Post Ischemic Stroke

Jumlah Penulis : 3 orang

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- metode cukup, menggunakan 10 masalah.
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Reviewer I

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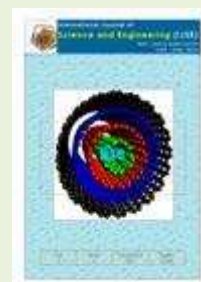
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Effects of aligned magnetic field and radiation on the flow of ferrofluids over a flat plate with non-uniform heat source/sink

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Abstract - In this study we analyzed the influence of radiation and aligned magnetic field on the flow of ferrofluids over a flat plate in presence of non-uniform heat source/sink and slip velocity. We considered Fe_3O_4 magnetic nano particles embedded within the two types of base fluids namely water and kerosene. The governing partial differential equations are transformed into nonlinear ordinary differential equations by using similarity transformation and solved numerically using *bvp5c* Matlab package. The effects of dimensionless quantities on the flow and temperature profiles along with the friction factor and Nusselt number is discussed and presented through graphs and tables. It is found that present results have an excellent agreement with the existed studies under some special assumptions. Results indicate that a raise in the aligned angle enhances the skin friction coefficient and heat transfer rate.

Keywords — MHD, Radiation, Ferrofluids, Non-uniform heat source or sink, Convection

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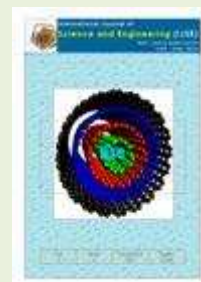
I. INTRODUCTION

Magnetic nanofluids are also called as ferrofluids. Ferrofluids are in the size of 5-15 nm. The main aim of ferrofluids is to controlling the heat transfer and fluid flow. It has potential applications in the field of industrial engineering, aerospace, aeronautical, medical, science and technology (Rosersweig, 1985), Hiegeister *et al.*, 1999). (Jafari *et al.*, 2008) illustrated the heat transfer analysis in ferrofluids by using computational fluid dynamics technique. The mesoscale structure analysis of ferrofluids with magnetic nano particles in presence of Brownian motion was discussed by (Xuan *et al.*, 2005). (Lajvardi *et al.*, 2010) examined the convective heat transfer in ferrofluids over a heated copper tube in presence of magnetic field. The influence of external magnetic field on the free convection ferrofluids flow and heat transfer was studied by (Sheikholeslami and Bandpy, 2014).

(Arulmurugan *et al.*, 2006) presented an experimental study on the thermal magnetic properties on ferrofluid flow in presence of Mn-Zn particles. The heat transfer analysis of thermophoretic radiative MHD nanofluid flow past an exponentially stretching porous sheet with heat generation/absorption was discussed by (Sandeep and

Sulochana, 2015) and concluded that an increase in the exponential parameter enhances the heat and mass transfer rate. (Raju *et al.*, 2015) illustrated the cross-diffusion effects on steady two dimensional flow over a stretching surface in presence of radiation and magnetic field effects and found that heat and mass transfer rate increase with the increase in Biot number. The effects of elevating laser power on the structural stability and chemical composition of magnetite nano particles in ferrofluids was experimentally analyzed by (Abrashev *et al.*, 2010). (Aminfar *et al.*, 2011) investigated the mixed convection flow of a nanofluid past a vertical tube in presence of non-uniform magnetic field. MHD effect on natural convective heat transfer of Cu-water nanofluid through hot elliptic cylinder was studied by (Sheikholeslami *et al.*, 2014).

(Aminfar *et al.*, 2013) illustrated the non-uniform transverse magnetic field effect of ferrofluid flow and heat transfer analysis past a rectangular duct. A numerical analysis of the magnetic and thermal buoyancy effects on ferrofluid was examined by (Jue, 2006). The convective heat transfer analysis of ferrofluid flow past a micro channels was considered by (Xuan *et al.*, 2007).



The Sensitization of Xanthophylls-Chlorophyllin Mixtures on Titania Solar Cells

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Abstract - Co-sensitization of natural dyes on TiO₂ for dye-sensitized solar cell (DSSC) was proposed between chlorophyllin (C) and xanthophyll (X) at various volume ratios of C/X. Chlorophyllin is chlorophyll derivative providing -COOH groups essential for binding to TiO₂. The chlorophyll was extracted from dried spinach (*Amaranthusviridis*) leaves in a mixture of methanol-acetone (70%:30%). Chlorophyll extract dye was obtained after partition of the crude extracts in diethyl ether solution. Then, it was hydrolyzed under alkaline condition to get chlorophyllin. Xanthophyll was extracted from fresh petal of *chrysanthemum indicum* flowers. Blending of chlorophyllin and xanthophyll was carried out at various volume ratios of C to X (1:0, 5:1, 1:1, 1:5, 0:1). Titania solar cells were constructed in sandwich system of conducting glass-titania/dyes as the photoanode and conducting glass-platinum as the photocathode. Electrolyte solution containing I⁻/I₃⁻ was inserted between the electrodes by capillary action. All dye extracts and blending solutions were analyzed by UV-Vis spectrophotometer. It is shown that the absorption spectra of blending dyes are complimentary in the visible region resulted in a panchromatic response of the dyes. From the cyclic voltammogram of the dyes and blended-dyes, it is found that the energy level of xanthophyll is the lowest. The I-V test at 100 mw/cm² irradiation confirmed that the energy conversion efficiency (η) of the blended dyes of xanthophyll and chlorophyllin-sensitized solar cell resulted in significant improvement than those of the single dye. Beneficially, the mixed dyes can be adsorbed from solution blend using single dipping step.

Keywords—Dye-sensitized solar cells, titania, natural dyes, chlorophyll

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I. INTRODUCTION

Dye-sensitized solar cells (DSSCs) have become one of the most promising alternatives for solar cell devices as compared to the conventional p-n junction photovoltaic devices. The conversion of solar light into the electricity is based on sensitization of a wide band-gap semiconductor such as titania (TiO₂) by the charge-transfer dyes, usually Ruthenium complex (O'Regan and Gratzel, 1991). However, the ruthenium dyes are facing environmental issues and cost problem that will limit the large scale application of DSSC. Currently, development on solar cell system mostly focused in silicon-based solar cells. Instead, there have been plentiful

natural dyes resources that have potential as dye sensitizer (Tennakone *et al.*, 1997; Dai and Rabani, 2002; Hao *et al.*, 2006; Kartini *et al.*, 2007; Kartini *et al.*, 2010). Research on the use of natural sensitizer for DSSCs has been slightly overlooked. Yet the efficiencies of DSSCs using natural sensitizers are also much lower than that of Ru-dye based solar cells, as well as their stability. Therefore, for further development of highly efficient and stable natural dye sensitizers, the dyes must be designed to absorb most of the sunlight radiation in visible and near-IR region and to have suitable electronic energy levels. The later requirement can be viewed to be suitable position of the HOMO-LUMO orbitals