

INTISARI

Karakterisasi Nanofiber PEDOT:PSS/PVA yang Berpotensi digunakan Sebagai Lapisan Penyangga Pada Sel Surya Organik *Bulk-Heterojunction* Menggunakan Metode Elektrosinning

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Nanofiber *Poly (3,4-ethylenedioxytriophene) : poly (styrene sulfonate)* (PEDOT:PSS) dengan diameter antara 130 nm sampai 270 nm telah berhasil dibuat dengan metode elektrosinning menggunakan larutan *poly (vinyl alcohol)* (PVA) 10 wt% sebagai campuran. Nanofiber dengan perbandingan PEDOT:PSS/PVA 1:3 memiliki diameter rata-rata paling tinggi yaitu (270 ± 40) nm sementara perbandingan 3:3 memiliki diameter paling kecil yaitu (130 ± 20) nm. Hasil pengukuran diameter rata-rata menunjukkan penurunan terhadap kenaikan konsentrasi PEDOT:PSS. Daerah serapan nanofiber PEDOT:PSS/PVA berada pada rentang 200 - 400 nm yang merupakan daerah yang baik digunakan sebagai *buffer layer* dalam sel surya organik *bulk-heterojunction*. Sementara itu terlihat bahwa senyawa PVA dalam nanofiber tidak menguap meskipun telah dipanaskan hingga 200°C.

Kata kunci: PEDOT:PSS, PVA, sel surya organik *bulk-heterojunction*, elektrosinning

ABSTRACT

Characterization of Nanofiber PEDOT:PSS/PVA with Potential used as Buffer Layer In Bulk-Heterojunction Organic Solar Cell using Electrospinning Method

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Nanofiber Poly (3,4-ethylenedioxytriophene) : poly (styrene sulfonate) (PEDOT:PSS) with diameter range between 130 nm to 270 nm have been successfully produced by electrospinning method using a solution of poly (vinyl alcohol) (PVA) 10 wt% as a mixture. Nanofiber PEDOT:PSS/PVA with ratio 1:3 has highest average diameter (270 ± 40) nm while the ratio of 3:3 has the smallest diameter that is (130 ± 20) nm. The results of the average diameter showed decrease with increase in concentration of PEDOT:PSS. Absorbance range nanofiber PEDOT:PSS/PVA in the range of 200 - 400 nm by ultraviolet-visible spectrophotometry which is a good area for used as a buffer layer in the bulk-heterojunction organic solar cells. While it appears that, the compounds PVA in the nanofiber did not evaporate when heated to 200°C.

Keywords: PEDOT:PSS, PVA, bulk-heterojunction organic solar cells, electrospinning