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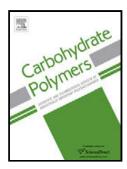
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# ACCEPTED MANUSCRIPT

High-throughput and high-yield fabrication of uniaxially-aligned chitosanbased nanofibers by centrifugal electrospinning

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### Highlights ▶

▶ We present a high-yield method for producing aligned chitosan-based nanofibers. ▶ Our HTP-CES shows superior fiber characteristics over traditional electrospinning. ▶ Bead-less fibers were produced despite spinneret and compositional variations. ▶ Our approach allows controlled nanofiber diameters while maintaining alignment. ▶ A concave correlation between needle diameter and fiber diameter was identified. ▶ Our method can be scaled up for production of tunable aligned nanofibers. ▶ ▶

#### **ABSTRACT**

The inability to produce large quantities of nanofibers has been a primary obstacle in advancement and commercialization of electrospinning technologies, especially when aligned nanofibers are desired. Here, we present a high-throughput centrifugal electrospinning (HTP-CES) system capable of producing a large number of highly-aligned nanofiber samples with high-yield and tunable diameters. The versatility of the design was revealed when bead-less nanofibers were produced from copolymer chitosan/polycaprolactone (C-PCL) solutions despite variations in polymer blend composition or spinneret needle gauge. Compared to conventional electrospinning techniques, fibers spun with the HTP-CES not only exhibited superior alignment,

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